Museum Library
APR 20 1941

American Antiquity

A Quarterly Review of American Archaeology

Contents

Two Post-Nipissing Sites near Killarney, Ontario. EMERSON F. GREENMAN AND GEORGE M. STANLEY 305

Beveled Artifacts in Florida of the Same Type as Artifacts Found near Clovis, New Mexico. ALBERT ERNEST JENKS, in collaboration with MRS. H. H. SIMPSON, SR. 314

Yokes or Ball Game Belts? J. ERIC S. THOMPSON 320

A Discussion of J. Eric Thompson's Interpretations of Chichen Itza Hieroglyphs. HERMANN BEYER 327

A Probable Association of Mammoth and Artifacts in the Willamette Valley, Oregon. L. S. CRESSMAN AND W. S. LAUGHLIN . . 339

FACTS AND COMMENTS . . . . . *See Cover III*

NOTES AND NEWS 349

BOOK REVIEWS . . . . . *See Cover III*

SOME RECENT PUBLICATIONS 383

SOCIETY FOR AMERICAN ARCHAEOLOGY MEMBERSHIP LIST . . 385

INDEX TO VOLUME VI 397

AMERICAN ANTIQUITY IS INDEXED IN THE INTERNATIONAL INDEX

Published by the

Society for American Archaeology

Vol. VI *April, 1941* No. 4

SOCIETY FOR AMERICAN ARCHAEOLOGY

OFFICERS

President: W. C. McKern, Milwaukee Public Museum, Milwaukee, Wisconsin.

Vice-President: Charles Amsden, Southwest Museum, Los Angeles, California.

Secretary-Treasurer: Thorne Deuel, Illinois State Museum, Springfield, Illinois.

Editor: Douglas S. Byers, Phillips Academy, Andover, Massachusetts.

Associate Editor: George C. Vaillant, American Museum of Natural History, New York City.

Assistant Editors:

Henry B. Collins, Jr., Arctic Geographical Area.
E. W. Gifford, Pacific Coast Geographical Area.
John C. McGregor, Southwestern Geographical Area.
Waldo R. Wedel, Plains Geographical Area.
Glenn A. Black, Northern Mississippi Geographical Area.
W. A. Ritchie, Northeastern Geographical Area.
Wm. S. Webb, Southeastern Geographical Area.
J. Alden Mason, Middle American Geographical Area.
Wendell C. Bennett, South American Geographical Area.
James B. Griffin, Field and Laboratory Technique.
F. H. H. Roberts, Jr., Early Man in America.
Frederick Johnson, The Notebook.

Members of Council: The President, Vice-President, Secretary-Treasurer, Editor, and Glenn A. Black, Harold S. Colton, A. T. Hill, Charles R. Keyes, Frederica de Laguna, Paul S. Martin, E. B. Sayles, and Frank M. Setzler.

American Antiquity is published at 450–454 Ahnaip Street, Menasha, Wisconsin, quarterly in the months of January, April, July and October by the Society for American Archaeology. Subscription only by affiliation in the Society for American Archaeology (annual dues $3.00); includes the quarterly issues of American Antiquity and other releases as issued.

Entered as second-class matter July 22, 1935, at the post office at Menasha, Wisconsin, under the Act of March 3, 1879.

Contributions and publications for review may be sent to the Society at 450–454 Ahnaip Street, Menasha, Wisconsin or to the editor, Douglas S. Byers, Phillips Academy, Andover, Massachusetts

AMERICAN ANTIQUITY

VOL. VI APRIL, 1941 NO. 4

TWO POST-NIPISSING SITES NEAR KILLARNEY, ONTARIO

EMERSON F. GREENMAN AND GEORGE M. STANLEY

IN 1939, the Museum of Anthropology of the University of Michigan continued the survey of the Manitoulin District of Ontario, begun in 1938.[1] Two sites were found on abandoned beaches of Lake Huron, both bearing cultural material in such positions as to enable dating of the material. The first site to be found (KB1) is two miles east of Killarney, on the mainland to the northeast of Manitoulin Island; the second site (CH1) is six miles east of Killarney. The present paper is a preliminary statement of the points of chief interest concerning these two sites. Site KB1 is at about the same level as another, on Great Cloche Island twenty-four miles west, which was excavated in 1938.[2]

ARCHAEOLOGY

E. F. GREENMAN

KB1 consists of an abandoned sandy beach, the top of which is about twenty-eight feet above the present level of Lake Huron. This beach is 300 feet wide and extends for about 700 feet north and south. It is terminated at each end by outcrops of granite and quartz-syenite which rise fifteen or twenty feet above the top of the beach. It is the largest member of a series of abandoned parallel beaches extending back from the water's edge for a distance of nearly a thousand feet, and to an elevation above lake-level of not more than fifty feet. Debris of occupation is abundant on an area of some five acres, but is thicker on the main beach and on those below it. Formerly, there seem to have been two burial mounds on the site, one on the main beach, and another at a higher elevation, several hundred feet northeast. Both were excavated many years ago.

[1] The members of this expedition were E. F. Greenman, in charge; Robert Benton, University of Chicago; and Ralph Patton, Sanford Waldstein, and Garland Marrs, University of Michigan.

[2] Greenman, E. F., and George M. Stanley, "A Geologically Dated Camp Site, Georgian Bay, Ontario," AMERICAN ANTIQUITY, Vol. 5, pp. 194–199.

Beneath the west slope of the main beach, several potsherds and other artifacts were found in water-laid sands and gravels at a depth of roughly two to six feet, and by these objects it is established that the site was occupied previous to the time that the main beach was formed. The potsherds are of a generalized Woodland type, grit tempered, with dark brown paste, and without decoration, except shallow notches in the outer edge of the lip of one sherd, and an alteration of the outer surface of the same one apparently by impression with fabric (Plate XXII *a*, B). The pattern has probably been made indistinct by water action. One base of a pot, strongly conoidal, was also found in an inverted position in water-laid strata (Plate XXIII *c*).

On the surface of the site, chiefly on the higher portions of the main beach, and to a depth of not more than about one foot, there occurred potsherds which are abundantly decorated with typical Woodland impressed elements. Other materials in the top soil were flakes and end scrapers of flint and quartzite, notched projectile points of flint, crude flaked celt-like blades of sedimentary rock, some apparently unfinished, and large numbers of angular spheroidal blocks of pink granite or quartz-syenite, secured obviously from the outcrops nearby and fractured by heat in domestic activities. Some of these objects were as much as three feet beneath the surface in pit-like deposits of sand which were colored black by ashes and charcoal, and extended down from the topsoil. In addition to potsherds, quartzite flakes, a large quartzite end scraper (Plate XXII *a*, D), and several angular pieces of the local granite were found in water-laid strata. It was the latter which led to the suspicion that bona fide artifacts would be found in the same position. One hearth about six feet in diameter, containing a horizontal layer of cracked stones at its top, lay a little more than a foot beneath the surface on the crest of the beach; between it and the bottom of the topsoil were six inches of light brown sand through which apparently no excavation from the surface had passed. The bottom of this hearth was six inches above definitely water-laid strata, and the intervening sand had the indeterminate character of the upper portions of the subsoil throughout all vertical exposures that were made. This lower six-inch layer was probably water-laid, but somewhat altered during the time that it lay at the surface of the ground. Except in the Killarney region, I have not seen such constructions, separated from the bottom of the topsoil band by relatively unstained earth, and, taken together with other factors, it seems quite evident that they formed the remains of fires built before the beach had been completed. Another similarly submerged or buried

hearth was later found on the other site four miles to the east (CH1). The one at KB1, just described, is believed at the present time to have been in the position from which the materials found up to seventy feet westward in water-laid strata were carried by wave action.

The second site (CH1) is identical in general plan, consisting of a sandy beach (about 300 feet north and south) disposed between two outcrops of granite. This beach ranges between forty-eight and about sixty-five feet above the present shore line of Lake Huron, which is from one to two miles to the south. Unlike KB1, no evidences of human activities are observable on the surface, and it was only because a road runs through the site that the existence of cultural material was discovered. The edge of this beach runs from the southern outcrop in a north northeast direction; to the west and northwest from this line there is a gentle slope upward, and in the opposite direction, to the east and southeast, the surface is level for about 1200 feet to Chikanising Creek, the bed of which is twenty or thirty feet below the general level. The debris of occupation lies in a narrow belt not more than seventy feet wide, and chiefly on the slope of the beach. There is much level surface farther up the beach between elevations of fifty-three to sixty-five feet, but there were no evidences of occupation on the surface, nor beneath the surface in the several test pits that were made. Thus, the site consists of a narrow band on the eastern slope of a bar or ridge which projects southward from an extensive abandoned beach, running east and west.

A trench not far from the northern edge of the site, beginning at the base or waterward edge of the beach and running up the slope and on a short distance to the relatively flat surface, fifty feet long over all, revealed the features shown in Fig. 32, which is a scale drawing of eleven feet of this trench giving the positions of all artifacts and by-products of artifact manufacture found in the section represented, and the relative dimensions and positions of strata. This scale drawing is a conventionalization, since it displays in one plane all the evidences of human activities found from one side to the other of this five-foot-wide trench. Each symbol represents an actual artifact (including flakes and fire-cracked stones as artifacts) and its position with relation to the three strata. The figures at the top of the graph are in terms of the number of feet from the northwest end of the trench.

The graph shows about sixty artifacts, chiefly flakes of quartzite, slate and flint, and angular pieces of granite and other rock materials, in the subsoil, between the bottom of the topsoil and the top of the uppermost water-laid strata. There were no indications that these objects in

the subsoil were placed in their positions by operations beginning at the surface or in the topsoil. The latter was dark gray or brown to black, and the subsoil was medium to light brown, with vertical patches of dark reddish material which had been cemented, and in which some of the quartzite and slate flakes were imbedded. The absence of disturbances into the subsoil from the surface indicates, as far as I can see, that the artifacts in the subsoil were covered by other than human agencies. Flint, in the form of flakes and a few points, was found only in the top-

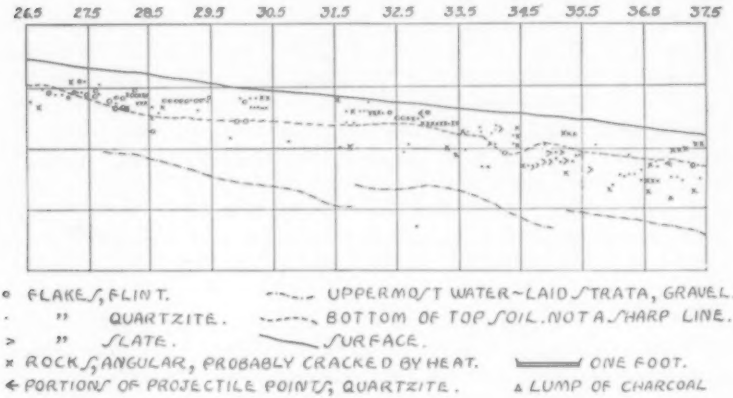


FIG. 32.—Schematic cross section through site CH1, Killarney, Ontario, along line of trench.

soil, or close to the bottom of the topsoil band where the line between it and the subsoil was indistinct. The flake in the 28.5–29.5 foot section (Fig. 32) lay just beneath a small pit-like drop of the bottom of the topsoil which is not shown in the chart.

If a line were drawn from one to another of the bottom-most artifacts in this face, it would show that the bottom of the artifact zone maintains a stable position throughout the entire eleven feet with reference to the slope of the water-laid strata. This condition prevails also throughout the eighteen feet of this trench in which the position of every artifact was plotted. The graph also shows artifacts at a progressively greater depth beneath the surface of the ground from left to right, i.e., from higher to lower levels. At 26.5 feet the lowest artifact is .8 foot below surface; at 28.5 feet it is 1.0 foot deep, and at 37.5 it is 1.1 feet, or 1.2 feet if

the small lump of charcoal indicated actually represents human agencies. This progressive deepening of the bottom of the artifact zone with reference to the surface was in evidence also at 43.5 feet, where several fragments of granite were found lying in a group on the surface of the uppermost water-laid stratum, and one angular piece of this group lay in and just beneath the water-laid material, at a depth of 1.4 feet to 1.5 feet; and at 48.5 where another angular piece of granite lay just beneath water-laid material at a depth of 1.6 feet. There is no certainty that these angular pieces of granite (most of them from the outcrops within 500 feet) represent the work of man, but they are not found where other signs of human occupation are lacking.

Two factors are taken to indicate that the artifacts in the subsoil of this trench were covered with sand by water action: first, the absence of any disturbance of the soil from the surface, and second, the uniformity of the bottom of the artifact zone in its relation to the surface line, and to the uppermost water-laid strata. The mechanics behind this uniformity are not clear, but the uniformity itself is not characteristic of material that has been placed in the ground by human activities beginning at the surface. The artifacts in the subsoil may have been brought to their positions in the first place by human beings, or they may have been transported there by wave action. I believe the latter to be the case, since between 17.5 and 22.5 feet, where the slope of the surface is very light, there was a deep pit-like deposit extending across the trench. This disturbed area extended to a depth of about 2.7 feet, and contained all the varieties of materials and artifact types found elsewhere in the trench, but concentrated in greater numbers in a smaller area. This pit appears to represent the camp-site, the point where cultural material was originally placed in the ground by human activities and perhaps covered over in the same way. But there was abundant evidence there, also, of water action nearly two feet below the surface, and some artifacts were found beneath water-laid deposits, which could possibly be the result of the filling in of an open pit by surface waters in a heavy rain. The materials in the subsoil, and possibly some or all of those in the topsoil, as shown in Fig. 32, appear to have been transported from this area of artifact concentration, between 17.5 and 22.5 feet. If the intensity of the water action transporting these materials had been uniform, a sorting of the materials by size would be observable, the lighter ones being carried farther down the slope than the heavier ones. No figures have yet been compiled on this distribution.

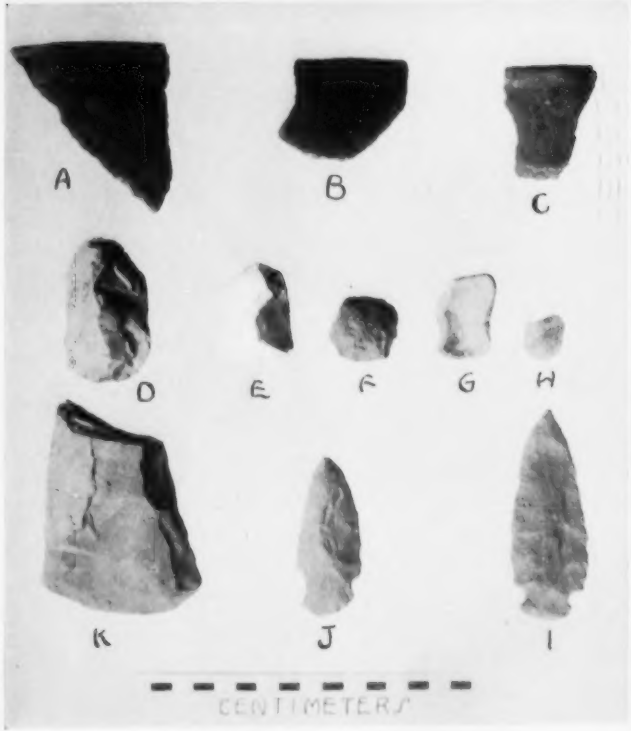
About thirty-five feet beyond the face shown in Fig. 32 in rather

heavy rubble consisting of more or less rounded pebbles averaging about three inches in diameter, a number of quartzite flakes were found which had been markedly smoothed. These flakes are all of types which existed elsewhere on the site, and appear in all respects to have been man-made. Flakes of quartzite were not observed in exposures of beach rubble elsewhere in the Killarney region and on Manitoulin Island. About half a dozen of these exposures, in gravel pits, have been examined. Some of these water-worn flakes are shown in Plate XXII *b*, D–H. J is of slate, and closely resembles part of the base of a symmetrical blade. I is another water-worn quartzite flake which was found between 32.5 and 33.5 feet, well below the top of water-laid materials (Fig. 32).

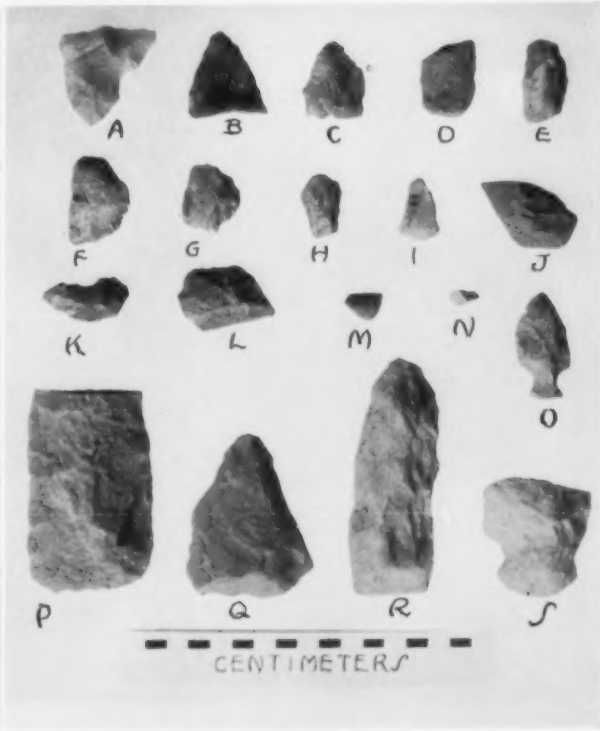
At another point, in the road, a buried hearth was uncovered, lying beneath about six inches of light brown sand which separated it from the bottom of the topsoil. This sand contained two or three quartzite flakes, but was otherwise sterile (Plate XXIII *a*).

No pottery nor bone material was found on this site. None of the stone artifacts had ground surfaces except the cutting edge of one celt of sedimentary material. This was found in the pit-like disturbance between seventeen and nineteen feet, at a depth of 1.2 feet.

The evidence for the contemporaneity of these two sites with lake-levels at their respective elevations is direct for KB1, where no other explanation of the facts is possible; for CH1, the evidence is circumstantial, and, while other interpretations might fit the facts, they have not come to my mind. On both sites, artifacts were at some distance from positions of artifact concentration accompanied by the usual stratigraphical signs of human activities, and in both instances these original positions are higher than the transported materials. At KB1, it is the simple occurrence of artifacts in water-laid strata that proves the case. At CH1, the case rests on several factors, namely: (1) the absence of cultural material on the surface; (2) the presence of artifacts deep in the subsoil with no sign of excavations from the surface; (3) the uniformity of the bottom of the artifact zone; (4) the presence of a buried hearth (as in the case of KB1 also); (5) the presence of artifacts on sloping ground near level ground; (6) the occurrence of water-worn quartzite flakes in water-laid gravels; and (7) the situation of the site itself, a quarter of a mile from a stream, which is at the same time too close and too far away under the present topographical lay-out. The only possible reason (if I may be permitted to look for a reason) for the choice of CH1 as a place to live was the presence of the waters of Georgian Bay at the bottom of the beach, forty-eight to fifty feet higher than they are at the present time.

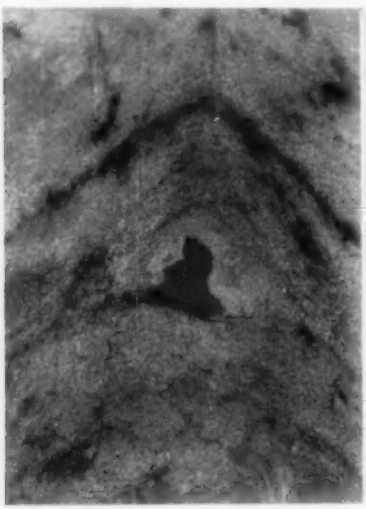


a. Material from site KB1, Ontario. A, B, C are potsherds that were in water-laid strata. C is shown in situ in Plate XXIII *b*. D, a flint end scraper, was also in water-laid strata. E–H, flint end scrapers. K, slate celt. J, I, flint.



b. Material from site CH1, Ontario. D–H: quartzite flakes from a water-laid stratum of rounded pebbles averaging three inches in diameter, worn surfaces and edges. J: slate, similarly worn, same stratum. Q: quartzite end scraper. K–O: flint. A, B, C, I, P, R, S: quartzite.

a. Vertical section of a hearth which was probably covered by wave action. The topsoil above had been destroyed by the road. Directly beneath the hearth is a water-laid stratum of gravel. Site CH1, Ontario.



b. Potsherd (Plate XXII *a*, C) in water-laid strata, site KB1, Ontario.

c. Base of a pot, in water-laid strata, site KB1, Ontario.

GEOLOGY

GEORGE M. STANLEY

Between Killarney and the Killarney peaks a few miles to the north stretches a rather flat sandy plain dotted with numerous outcropping knobs of the hard pre-Cambrian granite and gneiss, the latter conspicuously rounded and scoured by glaciation. The plain represents a lake bottom exposed by the slow withdrawal of the waters since the non-glacial Nipissing stage of the Great Lakes, during which, and at later times, many of the knobs were scattered low islands or reefs in the lake. These were bounded partly by their own rocky shores, and partly, and to an increasing extent as the lake withdrew, by fringing beaches of sand and gravel reworked from the earlier glacial deposits. Everywhere, the Nipissing and later beaches of deposition are subject in their course and position to the rock outcrops. A few rubble beaches, derived entirely from erosion of the outcrops, are to be found locally and with very limited extent. Post-Nipissing emergence from the lake has amounted to about eighty-five feet for the land in this district, but this is a small portion of the total change in level which has taken place since the earlier glacial lakes, and this total change embraces at least one upward fluctuation of the water, that which led up to the formation of the Nipissing beach. The eighty-five feet of emergence since the Nipissing has been apparently a slow and gradual process over a period of perhaps 4000 years, and due essentially to a tilting of the land. If there was any interruption in this change in level due to tilting, and neglecting of course minor changes due to seasonal and secular fluctuations of the lake, it cannot be stated from present knowledge. Perhaps some evidence along this line will come presently with an understanding of the Algoma beach mentioned by Taylor;[3] perhaps also some may become attached to the striking fact that two of Dr. Greenman's sites (KB1 at Killarney and the one on Cloche Island) occur in well developed beaches at the same post-Nipissing level.

The sporadic sandy beaches of the higher lake were certainly natural camp sites for the ancient inhabitants. This writer has noted with much interest how the natives on the east coast of James and Hudson Bays, where the ratio of sandy to rocky shores is much less than about Killarney, canoe along the coast by stages from one to another of these sandy spots where their camps are regularly made. The most common, and frequently the only, evidences of the camps are the rings of cobble-

[3] U. S. Geological Survey, Monograph 53, 1915, p. 464.

stones, the fireplaces, some fresh looking and intact, others grown over with grass and lichen and the stones dislodged or half scattered. Such observations interpret vividly for this writer the interesting hearth sites that Dr. Greenman has recently excavated from some of the abandoned beaches of northern Georgian Bay.

In mid-October, 1939, this writer accompanied Dr. Greenman to the two sites near Killarney where certain excavation trenches were reopened for examination. The site KB1 is located on a distinct, sandy beach ridge or bar about twenty-eight feet above lake level, the most conspicuous one of a series at the site, which represents the lower part of the post-Nipissing series of beaches. The terrain is not high enough to record the Nipissing beach itself, nor the immediately lower ones. The writer witnessed the exposure and removal of a sherd from the face of a pit on the lakeward slope of the twenty-eight foot beach (the sherd is Dr. Greenman's KB1, 124 from the north face of the TT-7 trench). The sherd lay in a horizontal position at a depth of 2.8 feet in the beach deposits which here were 3.4 feet thick over a surface of stiff, lacustrine clay at the base of excavation. The time of covering of the cultural materials at site KB1 by beach deposits may be assigned a minimum age of from 1100 to 1400 years, as previously indicated for the twenty-eight foot beach site on Cloche Island.[4]

The site CH1 lies on the slope of a sandy shore accumulation which is quite unlike the definite ridge at site KB1. A high ridge of gneiss with an east-west trend is here bordered on the south side by a belt of sandy, gravelly shore deposits which slope off fairly steeply to the south. Locally, this slope is more gentle where a poorly developed spit projects out from the general gravel accumulation in a gradually descending level southward. This spit shows a considerable range in level and fails to exhibit the ridged character and horizontality usually manifested by any extensive longshore drifting of beach materials. The road which parallels the rocky ridge, on the south side and at the base of the sloping shore alluvium, rises to a summit where it crosses this spit. The artifacts were excavated from the southeast side of the spit just north of the road. The increasing depth of the artifacts down the slope, as shown in Fig. 32, seems to fit naturally with a process of erosion and attrition by the waves, rolling the sand and pebbles down and lessening the slope. One cannot find any single beach line at a definite level to correspond to the time when the cultural remains were covered over, but fifty feet above

[4] See Greenman and Stanley: *op. cit.*

lake level is suggested, since this is the ground level at about the highest point where beach deposits overlie human materials.

The writer ran levels to a little rubble beach in a cranny on the rock ridge. Its gneissic granite pebbles, derived in situ, were very much rounded and reached a maximum height of eighty feet above the lake level. This obviously is a Nipissing beach though too limited to be an exact criterion of the Nipissing level. Dr. Greenman's party levelled to a well developed Nipissing terrace and bluff at eighty-five feet, cut into glacial and lake alluvium three-quarters of a mile to the east, and this section serves better for the purpose of our survey. Taking fifty-six feet as the height of the beach at the site, and eighty-five for the Nipissing, the site might then be said to be fifty-six eighty-fifths as old as the Nipissing, or to have an age of from 1960 to 2632 years as a minimum.[5] Accuracy of age determination cannot be claimed. In fact, it is not yet perfectly clear, and this applies to the Cloche Island site as well as to those at Killarney, that the depositions which covered the sites date from a time in the recession of the lake from the Nipissing stage, rather than during the advance of the waters which introduced that stage. However, there seems little likelihood for the sites to have actually antedated the Nipissing beach. It is to be hoped that further work by the two authors in their respective fields will clarify the circumstances and date of the lake's encroachment on the sites described.

University of Michigan
June, 1940

[5] For reasons behind this, see Greenman and Stanley: *op. cit.*

BEVELED ARTIFACTS IN FLORIDA OF THE SAME TYPE AS ARTIFACTS FOUND NEAR CLOVIS, NEW MEXICO

ALBERT ERNEST JENKS
in collaboration with
MRS. H. H. SIMPSON, SR.

IN THE spring of 1937 I first saw beveled artifacts in Florida. They were in the extensive catalogued collection of Florida Indian artifacts gathered by the H. H. Simpson family of High Springs, Florida. During that year, two specimens of the same type of beveled artifact were published in the *Proceedings of the Academy of Natural Sciences of Philadelphia*.[1] These latter specimens had been excavated from a pit of pluvial gravel near Clovis, New Mexico, by a field party led by Dr. Edgar B. Howard during the summer of 1936. The three Florida artifacts described herein were found, in a total of seven pieces, by the Simpsons, beginning in June, 1927, in the bed of a Florida river.

The New Mexico artifacts were found in cultural association with typical "Folsom" chipped points; both beveled artifacts and Folsom points were in close physical association with skeletal remains of extinct animals. Among them were the following:—*Parelephas* (?) *cf. columbi* (Falconer); *Bison*, extinct species or subspecies; *Equus*, extinct species; *Cervus*, species indet.; Rodent, species indet.; *Terrapene ornata* Agassiz.

The Florida artifacts were found in the Itchtucknee River the source of which is in southern Columbia County, north central Florida. The river is a typical spring-born Florida stream, swift and clear. Its volume exceeds all other spring-born Florida rivers, except the one from Blue Springs and the one from the more famous Silver Springs. The Itchtucknee quickly flows southward from its source, and within some five miles empties into the Sante Fe River which in turn feeds the world famous Suwannee River. The artifacts presented here were found about a mile and one-quarter below the springs in a section of the bed some 300 yards in length, where the water was about four feet deep. In that short section were also found several hundred chipped stone and bone artifacts (the latter apparently broken points of so-called "awls"). In that

[1] Cotter, John Lambert. "The Occurrence of Flints and Extinct Animals in Pluvial Deposits near Clovis, New Mexico. Part IV,—Report on Excavation at the Gravel Pit, 1936." *Proceedings of the Academy of Natural Sciences of Philadelphia*, Vol. LXXXIX, 1937.

same section of the river, the Simpsons also recovered bones of some twenty species of extinct animals, including the following: beaver, bison, camel, mammoth, mastodon, giant sloth, and tapir.

For purposes of study and present presentation the Florida beveled artifacts are designated A, B, and C.

Artifact A (Plate XXIV *a*, views 1 and 2) is here presented in its entirety, so far as it has been recovered. In the Simpson Collection, it is numbered A-236. It was found in two pieces; at least one additional piece from the forward end is still missing. As recovered, the artifact was practically cylindrical in cross-section, excepting that the base end was beveled on one face. The process of producing the bevel removed less than one-half of the material, so that the artifact would not be weakened when lashed to its propelling shaft, bevel against bevel. Both views of A show that the artifact tapers with straight lines to a point. When originally made, the artifact was not thus pointed. The present tapering is due to the fact that the surface exposed (where the part is missing) is curvilinear; and also to the fact that the artifact was shaped with its long axis diagonal, rather than parallel, to the growth-rings of the object from which it was made. This object, as shown by the curvilinear form of its growth-rings, was small, i.e. less than two inches in diameter.

In color the artifact is dark brown, but the fractured face (Plate XXIV *a*, 1) is lighter brown, with a distinctly golden tint. The surface, where not fractured or incised, is shiny, as though polished. All this part of the surface bears fine, quite parallel, tool marks. One cannot feel them, but they are visible when the surface is examined in a favorable light. The fractured surface has no such tool marks, and is distinctly duller, lacking the appearance of polish. The flat, beveled surface is incised with some twenty-seven equally wide and parallel grooves and separating ridges. The grooves were cut or abraded with considerable regularity, as the illustration (Plate XXIV *a*, 1) shows. The convex front surface, which is opposite the flat bevel, is also incised; but its grooves and ridges are arranged in irregular diagonals, resulting in a crude net-work, well shown in Plate XXIV *a*, 2. As is shown in both views of A, the incisions on the convex face meet those on the flat face, so that the base end of this artifact is completely covered with incisions.

A straight black line may be seen in Plate XXIV *a*, 2, extending from the left end of the incised area, at the bottom of the picture, toward the tip. The black line separates the two fragments, and is parallel throughout its length with the fractured face of the artifact. We assume that the

space between those two parallel lines marks the thickness of an annual growth ring of the material of which the artifact was made.

MEASUREMENTS OF ARTIFACT A

Total length of parts recovered	182.0	mm.
Length of bevel, all of which is incised	58.0	"
Greatest diameter, immediately forward of bevel (parallel with flat face)	12.3	"
Greatest diameter, immediately forward of bevel (at right angle to flat face)	12.0	"
Length of fractured face	78.0	"
Thickness of growth-ring	7.5	"
Specific gravity	1.96	—
Present weight of parts recovered	440	grains

Artifact A now has considerable lateral warping (Plate XXIV *a*, 2) along its upper side. How much longer this artifact originally was or what was the shape of the missing forward end, it is impossible to say.

The material of which the artifact was made has not as yet been determined. Mr. J. Clarence Simpson, Museum Assistant, State Department of Geology, Tallahassee, Florida, who, with his father and mother, found all the artifacts in the extensive Simpson Collection, believes it to be manatee bone.

Artifact B is numbered A-235 in the Simpson Collection. It was recovered as it now appears in Plate XXIV *b*. In spite of utmost precaution, the artifact split from end to end close to its mid-width, some time after being found, but the fracture does not show in our illustration. Parallel to the split there is a fractured surface extending from the base well toward the tip. The long, slender fragment broken away has not been recovered. The surface of artifact B is so dark in color it should properly be called black, being distinctly darker than artifact A. Excepting where incised, and on the fractured surface, the entire artifact is shiny, as though highly polished. Further, its finished surface is covered with narrow, straight, parallel, longitudinal facets, which are the artificer's tool marks. As on artifact A, they are visible when one rotates the artifact in favorable light.

Artifact B is beveled, as was artifact A. Both its flat bevel and the opposite convex face are completely incised. In our illustration the beveled face is shown at the upper right end. A magnifying glass will aid one in seeing the incised lines. From the base of the bevel, this artifact tapers quite regularly to its tip, excepting that, as shown at the lower left part, it has been distinctly sharpened—it is quite likely that it was resharpened.

Artifact B is made of ivory which is believed to be mammoth or mastodon tusk.[2] It has none of the little tell-tale pits which are indica-

[2] All three of the artifacts presented here were tested for specific gravity by Dr. Frank F. Grout, Department of Geology, University of Minnesota.

a. Beveled Artifact A, Florida. View 1, above; view 2, below.
b. Beveled Artifact B, Florida.

tive of the cancellous structure of bone artifacts. The artifact clearly was made for a point (probably a hunting point, rather than a war point) to be bevel-hafted to a propelling shaft or to a fore-shaft. It has none of the marks of a fore-shaft, as has the "first" of the beveled artifacts from near Clovis, New Mexico.

MEASUREMENTS OF ARTIFACT B

Total length, complete artifact	91.0 mm.
Length of bevel, all of which is incised	25.0 "
Greatest diameter, immediately forward of bevel	8.5 "
Length of fractured face, forward from base	55.5 "
Thickness of growth-ring, between the fractured face and the line of the split	00.27 "
Length of resharpened tip	1.6 "
Specific gravity	2.27 —
Present weight of fragments recovered	109 grains

Artifact C is number A-237 in the Simpson Collection. It was originally of the same type as A and B. It was found in four split fragments of various lengths. The several broken ends fit together, so there is no doubt of their original placement, but lateral warping prevents permanent reconstruction. The fragments recovered total a length which is about midway between artifacts A and B. The base of C is incised with grooves and ridges of size similar to those of A. Its forward end was finished to a point, as is that of B. It is possible to fit the fragments together snugly along their faces for short distances, and thus to determine diameters of the original artifact.

This artifact is black and shiny, like B. Like both A and B, all finished surfaces of its fragments, excepting where incised, show slender parallel, longitudinal facets visible in reflected light, but not otherwise discernible. They are ancient tool marks. One fragment shows that the base of C has been both broken across and split. This fragment bears the incised lines of the convex face of the basal section, but the flat, bevel face is missing. If the incised base of C was originally as long as is the incised base of A, then artifact C has lost a length of 44.0 mm. at its base. This would have made C somewhat longer than is A as recovered.

MEASUREMENTS OF ARTIFACT C

Total length of fitted fragments recovered	150.5 mm
Ditto, with estimated length of missing base added	190.0 "
Length of fragment No. 1	144.0 "
Ditto, No. 2, which bears the incised lines	131.0 "
Ditto, No. 3	113.5 "
Ditto, No. 4	45.0 "
Length of incised section of fragment No. 2	14.0 "
Greatest diameter, toward base	10.1 "
Least diameter, at tip	00.9 "
Thickness of growth-ring, between the two flat faces of fragment No. 1	00.27 "
Specific gravity	2.60 —
Present weight of all fragments recovered	420 grains

Artifact C, like artifact B, is made of ivory. It is interesting that fragment 1, with its two parallel flat faces, is the same thickness as is the fragment of artifact B which had similar faces, namely, 00.27 mm. Consequently, it seems reasonable to think that artifacts B and C may have been made from the same elephant tusk with the same thickness of growth ring.

A few words should be added for the benefit of readers who may not have read the study of the New Mexico artifacts. Those artifacts are said to be made of bone, as noted in the Cotter study.[3] They are in diameter, roughly, about one-third larger than are the two larger ones from Florida, namely, B and C. They may or may not have been longer. Both are greater in diameter and are longer than Florida artifact A. I briefly quote Cotter, from page 14, describing the New Mexico artifacts, as follows: "The [first] artifact was seen to be a cylindrical shaft of bone, 252 mm. long and 15 mm. in diameter at the thicker end, beveled at both extremities. Striations are indicated on both bevels, although these are less distinct at the thicker end, which was found damaged. The second bone artifact (Plate 2) is 234 mm. long, and 17 mm. in maximum diameter. This specimen is likewise cylindrical in shape, tapers, and has a well-defined bevel marked with oblique transverse cuts or scratches. It differs, however, in that it has only a very slight bevel at the tapering end, which shows no scratches. The surface of this bone artifact is smooth except for a few faint scratches running transversely which occur towards the bevel."

In Cotter's Plate 2, the "second" bone artifact is presented excellently in two views. Each view shows the point of the artifact, its beveled base, and its "striations" (grooves and ridges) thereon. Cotter's Plate 7 shows well the bevel form of the "first" bone artifact; it also, fortunately, presents the artifact in situ in close juxtaposition to bones of the fore leg of the first mammoth which Dr. Howard found in his pluvial gravel pit excavation.

Our conclusion is that the three beveled artifacts of Florida and the two beveled artifacts of New Mexico (which are typologically the same), belong to a long extinct culture, probably of closely approximating age, namely, of late glacial or early post-glacial time. From the geological and climatological data published on the Clovis site,[4] artifacts

[3] *Ibid.*, pp. 6, 7, 11, 14, 15, 16.

[4] Antevs, Ernst. "The Occurrence of Flints and Extinct Animals in Pluvial Deposits near Clovis, New Mexico." *Proceedings of the Academy of Natural Sciences of Philadelphia*, Vol. LXXXV, 1935.

there have been dated as existing probably from "13,000 to 12,000 years before our time." The climate may also have been distinctly moister than at present; and the mean annual temperature was about 8 degrees F. lower than today. Such temperature at the altitude of Clovis (some 4,250 feet) must have been colder than the temperature of Florida ever was—where the highest land is only 325 feet above sea level. It seems probable, however, that during glacial times the polar temperatures in the glaciated areas north of the Ohio river and the glaciated lands of the southern Rocky Mountains, including New Mexico, must have produced temperatures in Florida, during thousands of years, far colder than those of the present times. Pleistocene animals (including the mammoth, which has been commonly assigned to a cold habitat) have been found abundantly elsewhere in Florida, as well as in the Itchtucknee River area. The beveled artifacts from this river, similar in typology to those of New Mexico of, say, rather closely dated age, strongly reemphasize the idea that Florida must be recognized as one of the areas of North America occupied by man of ancient culture.

University of Minnesota
Mound, Minnesota
June, 1940

YOKES OR BALL GAME BELTS?

J. Eric S. Thompson

THE peculiar U-shaped stones called yokes, found in large quantities in the State of Veracruz, and adjacent parts of Mexico, and in smaller numbers and of less sumptuous quality through the Central American highlands, have long been the subject of much discussion.[1] It has been claimed that on Pipil (Mexican) sculptures at Santa Lucia Cozumahualpa, on the Pacific slope of Guatemala, individuals, all of whom raise one hand or gaze up at a deity who looks down from the sky, actually wear yokes around their waists.[2] A typical representation of one of these individuals is shown in Fig. 33 *a*. Dr. S. K. Lothrop considered that there could be no doubt that the pottery vessel from the neighborhood of El Quiche, Guatemala, shown in Fig. 33 *b*, actually represented a person wearing a stone yoke around his waist, and thereby was strengthened in his belief that the Santa Lucia Cozumahualpa figures are actually portrayed as wearing stone yokes.[3]

This theory is extremely hard to accept for four reasons. Firstly, stone yokes often weigh forty to sixty pounds each. Secondly, the inner surfaces, which frequently carry the most complicated designs, would be in contact with the body and therefore entirely out of sight if the yokes were worn around the waist. Thirdly, since no yokes show any holes for attachments and are roughly truncated cone-shaped in section, they would be extremely difficult to wear around the waist, and some are closed at the end thereby increasing the difficulties. Fourthly, the only yoke, so far as this writer knows, ever reported with a properly documented burial was placed horizontally around the skull, so that the two ends of the U were about where the shoulders should have been in this extended burial.[4]

If then, it is highly improbable that these peculiar belts in the Santa Lucia sculptures are stone yokes, what can they represent? Their wearers in general are clad alike. All have one hand enclosed in a kind of glove, the front of which is shaped as a grotesque head. In six cases, this is the left hand, in two cases, the right hand. In addition, all wear garments over their hips and buttocks. According to Father Duran,[5] who

[1] The most complete of the many discussions of yokes is to be found in Strebel, 1890. For shorter discussion, bibliography, and illustrations see Spinden, 1933.

[2] Most of these are illustrated in a number of publications, including Habel, 1878; Seler, 1892; Strebel, 1899.

[3] Lothrop, 1923. [4] Genin, 1928.

[5] Duran, 1867-1880; most of this citation is translated into English: Blom, 1932.

has left us the most complete account of the ball game as performed in ancient Mexico, the players wore leather over their loincloths, trousers of buckskin to protect their hips, which they were constantly scraping against the ground, and gloves to protect their hands, with which they were continually steadying and supporting themselves against the ground. The ball could be hit with the knees, stomach, thighs, or buttocks, and the players threw themselves to the ground to take difficult shots.

Some years ago Thomas A. Joyce, in a paper describing the pottery figurine whistles of Lubaantun, British Honduras, identified a series of visored individuals wearing heavy garments around their hips, as ball game players.[6] All of these wear a kind of glove on the right hand, but never on the left. In one or, perhaps, two cases this glove, like those of Santa Lucia Cozumahualpa, is decorated with a grotesque face (Fig. 33 *f*). Similarly gloved and visored figures from Lubaantun are in the Field Museum, Chicago.

In some representations of ball courts in Mexican codices, the players wear gloves on the right hand.

As is now well known,[7] ball game players are represented in a number of cases on ball court markers. Since this matter is the subject of a study now being made by Señor Mario Mariscal, I will confine myself to the briefest citations necessary to establish my case. Two such scenes from ball court markers at Copan (Fig. 33 *e*, *g*) show players each with a hip cloth made of jaguar skin (note the spots), a kneepad on one knee, and around the waist a broad belt, reminiscent of those worn by the Santa Lucia Cozumahualpa figures and previously identified as stone yokes. These Copan figures do not wear gloves, but each has one fore-

[6] Joyce, 1933. The Popol Vuh mentions visors used by players.

[7] As long ago as 1915, R. E. Merwin, in his field notebook, described the ball court markers he had found at Rio Grande (Lubaantun) as ball game stones. Since the ball court in which they were found was scarcely recognizable then as such, not only because it bore no resemblance to any courts then known, but because its inner sides were stepped like staircases, thereby greatly complicating play, one must assume that the actual designs on these markers led Merwin to come to his conclusion. F. Blom, in the paper cited, suggested that the circle might represent the rubber ball, thereby implying the possibility that ball game scenes were here portrayed. Mario Mariscal, however, was the first definitely to identify such a scene (that on the Chinkultic marker) as a ball game player (Mariscal, 1936). S. G. Morley, in *The Inscriptions of the Peten*, at a still later date also identifies the individuals portrayed on these and other ball game markers as players.

Mariscal's full discussion of the problem, "La estela número 10 de chinkultic y el juego de pelota prehispánico entre los mayas," will appear in the *Proceedings of the XXVIII International Congress of Americanists* (in press).

FIG. 33.—Ball Game Players. *a*. Santa Lucia Cozumahualpa (after Habel). *b*. Pottery vessel probably from El Quiche, Guatemala (after Lothrop). *c*. Tepatlaxco, Veracruz (after Batres). *d*. Chinkultic (after Mariscal). *e* and *g*. Second ball court, Copan (after Stromsvik and Morley). *f*. Pottery figurine whistle, Lubaantun (after Joyce, but waist and legs supplied from other figurines of this ball player series illustrated by him).

arm wrapped with a wide armlet. A similar waist belt, protection for the right forearm, and right kneepad, are worn by the player on a stone ball game marker found by Mexican archaeologists at Chinkultic (Fig. 33 *d*). The question of which forearm or leg was protected probably depended on the position the player occupied in the court.

The well-known relief of Tepatlaxco, Veracruz, shows a player being attired for the game (Fig. 33 *c*). His right forearm is wrapped in a spiral bandage which is twisted over the back of his hand and between thumb and index finger. A large pad protects his right knee. Around his waist is a wide belt over the top of his (leather?) hip cloth, and above that is an armless corselet. The area between the belt and slightly below the armpits is wrapped with a kind of bandage or wide cord, one end of which is grasped by an attendant.

The figures from the reliefs of Santa Lucia Cozumahualpa closely resemble these generally accepted ball game players in every point of costume. They wear similar hip cloths, heavy belts of unidentified material around their waists, pads (or in some cases merely a cord) on or beneath one knee, while one arm is protected with a glove, in contrast to the wrapped arm of the Copan, Tepatlaxco, and Chinkultic players. However, in the use of a glove they agree with the figures of Lubaantun, pictures in Mexican codices, and Spanish eye-witness accounts. It therefore seems clear that the objects worn around the waist are not stone yokes, but belts of some other material that served to protect the players. Possibly these sculptured slabs from Santa Lucia Cozumahualpa once adorned the sides of a ball court. Similarly, the effigy vessel (Fig. 33 *b*) must represent a player in the act of taking a difficult shot, his belt, bandaged arm and pad on one knee protecting him from abrasions such as Duran describes.

It is of course possible, although not probable, that yokes are ceremonial representations in stone of the belts worn by ball game players, but the writer hardly considers this likely, for two of the reasons given above: the presence of designs on the inner surfaces, and the difficulties of supporting the stone yokes around the waist of a man or idol. Furthermore, the designs on yokes are not directly linked with the ball game, although owing to the ramifications of Mexican mythology it would be possible to establish indirect connections, as also, for that matter, between their designs and almost any concept whatever.

In passing, one might refer to a point that has been raised by Frans Blom in discussing the game. He quotes a translation by Brasseur de Bourbourg of the Quiche word *bate* as ring to suggest that the players

brought with them to the play their own rings, through which the ball had to be shot in order to win. Actually the word *bate*, so far as the writer can discover, is given in only four Quiche—or Cakchiquel—Spanish dictionaries, and in each case with the meaning "argolla para la garganta" (throat ring or collar). Francisco Ximenez leaves the word untranslated.[8] One passage, however, makes this meaning of ball court ring extremely doubtful. One of the two heroes has lost his head which their enemies in triumph set up in the ball court, the surviving hero, Xbalanque, substitutes a tortoise for his brother's severed head and arranges for a rabbit to be in hiding in a nearby tomato patch or on the cornice of the ball court (the translations conflict here), and to start running when the ball was hit there. The two heroes then go to the game. According to Ximenez, "On the lords of the underworld [their opponents] hurling the ball, Xbalanque went out to meet it, and hitting it back hard with the *bate* made it pass over the court. The ball fell in the tomato patch where the rabbit was hidden,"[9] whereupon the rabbit rushed off as though frightened and while his opponents were chasing it, Xbalanque recovered his brother's head and replaced the tortoise head with it.

The de Bourbourg translation reads, "The kings of Xibalba [i.e. lords of the underworld] hurled the rubber ball. Xbalanque went out to meet it. It went straight to the ring, stopped, and immediately went out, it passed above the ball court and with a single bound entered straight between the cornice mouldings."[10] There follows the incident of the rabbit being chased while Xbalanque substitutes the heads. In this passage, it seems that *bate* can hardly mean "ring" for three reasons: (1) the rabbit incident was planned by Xbalanque and, since his cleverness is extolled throughout the narrative, it is far more logical to believe that the ball was directed by him to the vicinity of the rabbit rather than that he depended on a chance shot; (2) if the hitting the ring version were correct, the statement that Xbalanque went to meet the ball would be meaningless or redundant; (3) the ball could hardly pause at the ring, pass through it and thence bounce higher than the distance it fell to pass above the ball court. It is, therefore, logical to assume that *bate* means not the ball court ring, but something with which Xbalanque hit the ball. Since all shots had to be taken on the hips, knees, stomach, or but-

[8] Blom states in the work cited that Ximenez translates *bate* as "pala." Such is not the case, Ximenez leaves the word untranslated, but uses the word "*pala*" to translate *pachgab* (gloves), *pala*, as Blom says, means "spade," but it also means any bat or racquet used in a ball game, particularly the *jai alai* of the Basques.

[9] Ximenez, 1931, Vol. 1, Bk. 1. [10] de Bourbourg, 1861, Part 2, Chap. 11.

tocks, and as skins are mentioned in addition to the *bate*, it seems not unlikely that the word meant the belt worn around the waist.[11]

A word may be said, in conclusion, on these and other Pipil sculptures of the Pacific slope of the Guatemalan highlands. Style, subject matter, and tradition indicate the source of their inspiration as southern Mexico. There are also grounds for dating them as approximately A. D. 1200, and for believing that, unlike most Mexican peoples, but in agreement with tribes of northern Oaxaca, their makers used as the year bearers of their calendar the days Eecatl, Mazatl, Malinalli, and Olin. These wider questions are the subject of a longer paper, on which the writer is now engaged.

BIBLIOGRAPHY

BLOM, F.
1932. *The Maya Ball Game Pok-ta-pok.* Tulane University, Middle American Research Series, Vol. 4.

DE BOURBOURG, BRASSEUR
1861. *Popol Vuh, le livre sacré et les mythes de l'antiquité américaine.* Paris.

DURAN, D.
1867–1880. *Historia de las Indias de Nueva España y islas de tierra firme.* Ed. J. F. Ramirez. Mexico.

GENIN, A. M. A.
1926. "Note sur les objets precorteziens nommés indûments, yugos ou yougs." *Proceedings, XXII International Congress of Americanists*, Vol. 1, pp. 521–528.

HABEL, S.
1878. *The Sculptures of Santa Lucia Cosumalwhuapa in Guatemala.* Smithsonian Contributions to Knowledge, No. 269.

JOYCE, T. A.
1933. "The Pottery Whistle-figurines of Lubaantun." *Journal of the Royal Anthropological Institute*, Vol. 63.

LOTHROP, S. K.
1923. "Stone Yokes from Mexico and Central America." *Man*, Vol. 23, No. 58.

MARISCAL, M.
1936. "Riquezas arqueológicas: un jugador de pelota prehispánico según una inscripción maya." *Mapa*, Mexico.

SELER, E.
1892. "Los relieves de Santa Lucía Cozumahualpa." *El Centenario*, Vol. 3, pp. 241–252.

SPINDEN, E. S.
1933. "The Place of Tajin in Totonac Archaeology." *American Anthropologist*, Vol. 35, pp. 225–270.

[11] The pottery vessel (Fig. 33 *b*) shows, at the back of the neck, part of a spiked collar which might be described as an "argolla para la garganta," but this is the only example known to the writer of a peculiar neck ornament, furthermore a neck ring would hardly make sense in the passage quoted.

STREBEL, H.

1890. "Studien über Steinjoche aus Mexico und Mittelamerika." *Internationales Archiv für Ethnographie*, Vol. 3, pp. 16–28, 49–61.

1899. *The Sculptures of Santa Lucia Cozumahualpa, Guatemala, in the Hamburg Ethnological Museum.* Annual Report, Smithsonian Institution.

XIMENEZ, F.

1931. *Historia de la provincia de San Vicinte de Chiapa y Guatemala de la orden de predicadores.* Guatemala.

Carnegie Institution of Washington
Cambridge, Massachusetts
July, 1940

A DISCUSSION OF J. ERIC THOMPSON'S INTERPRETATIONS OF CHICHEN ITZA HIEROGLYPHS[1]

HERMANN BEYER

IN MY *Studies on the Inscriptions of Chichen Itza* I gave tentative datings of a number of buildings and monuments on the basis of Tun-Ahau combinations contained in their inscriptions.[2] The list is repeated here as Table I.

TABLE I

HYPOTHETICAL DATINGS FOR SOME INSCRIPTIONS OF CHICHEN ITZA

Akab Tzib	Tun 11, 1 Ahau	10. 7.11.0.0	A.D. 978
Initial Series	Tun 10, 1 Ahau	10. 9.10.0.0	1017
Monjas	Tun 11, 1 Ahau	11. 0.11.0.0	1235
Three Lintels	Tun 10, 1 Ahau	11. 2.10.0.0	1273
Hieroglyphic Band I	Tun 16, 1 Ahau	11. 3.16.0.0	1299
Caracol Stela	Tun 16, 1 Ahau	11. 3.16.0.0	1299
Serpent's Tail	Tun 16, 1 Ahau	11. 3.16.0.0	1299
One Lintel	Tun 15, 1 Ahau	11. 5.15.0.0	1337
Hieroglyphic Band II	Tun 8, 1 Ahau	11. 6. 8.0.0	1350
High Priest's Grave	Tun 11, 2 Ahau	11. 6.11.0.0	1353
Hieroglyphic Band III	Tun 1, 12 Ahau	11. 8. 1.0.0	1383
Four Lintels	Tun 13, 1 Ahau	11. 9.13.0.0	1414
Yula	Tun 5, 1 Ahau	11.12. 5.0.0	1465
Tomb Capstone	Tun 9 (11 Ahau)	11.12. 9.0.0	1469

J. Eric Thompson proposes another device in which the Calendar Round dates and the Tuns are connected with a Katun ending.[3] His list is reproduced as Table II.

TABLE II

MONUMENT	CALENDAR	ROUND	TUN	LONG COUNT	KATUN	
Trough Lintel	11 Ben	11 Cumhu?	18	10.1.17.5.13	10.2.0.0.0	3 Ahau
Trough Lintel	6 Chicchan	18 Cumhu??	19	10.1.18.6. 6	10.2.0.0.0	3 Ahau
Casa Colorada	7 Akbal	1 Chen	1	10.2. 0.15.3	10.3.0.0.0	1 Ahau
Halakal	9 Muluc	7 Pop??	1	10.2. 0. 7.9	10.3.0.0.0	1 Ahau
Akab Tzib	—	—	1	10.2. 1. 0.0	10.3.0.0.0	1 Ahau
One Lintel	—	—	15	10.2.15. 0.0	10.3.0.0.0	1 Ahau
Yula I	8 Kan	2 Pop?	5	10.2. 4. 8.4	10.3.0.0.0	1 Ahau
Yula II	3 Eb	10 Pop	5	10.2. 4. 8.12	10.3.0.0.0	1 Ahau
Initial Series	9 Muluc	2 Zac	10	10.2. 9. 1.9	10.3.0.0.0	1 Ahau
Three Lintels	—	—	10	10.2.10. 0.0	10.3.0.0.0	1 Ahau
Monjas	8 Manik	15 Uo	11	10.2.10.11.7	10.3.0.0.0	1 Ahau
Four Lintels	9 Lamat	11 Yax	13	10.2.12. 1.8	10.3.0.0.0	1 Ahau
Four Lintels	12 Kan	7 Zac?	13	10.2.12. 2.4	10.3.0.0.0	1 Ahau
Caracol Stela	—	—	17	10.2.17. 0.0	10.3.0.0.0	1 Ahau
Caracol Band	3 Imix	9 Yax	1	10.7. 0. 5.1	10.8.0.0.0	4 Ahau
High Priest	2 Ahau	18 Mol?	11	10.8.10.11.0	10.9.0.0.0	2 Ahau
Tomb	6 Kan		9	11.12.8.13.4	11.13.0.0.0	6 Ahau

[1] Presented in part to the Second International Congress of Anthropologic Sciences, Copenhagen, August 1939. (See Compte rendu, p. 286.)

[2] Beyer, 1937, pp. 167–170. [3] Thompson, 1937, pp. 179–192.

In the first place, it must be objected that it is highly improbable that the Ahau date could refer to Katuns, since a Katun sign never is near them, while the Tun hieroglyph, with its numeral, stands always immediately before the Ahau. The reading "*m* Tuns ending on *n* Ahau," therefore, is the only possible one. There are several ways to interpret this statement, but the statement itself is quite clear.

Another, no less serious, objection has to be made against Thompson's hypothesis. If we look over his table, we see that for Katun 10.3.0.0.0 twelve dates are listed. Since these dates, with only one exception (the Caracol Stela), occur in inscriptions which form, or did once form, integral parts of buildings, it would mean that the Itzas, in the time span of less than twenty years, finished all these buildings. With all our admiration for the great Maya-Toltec people, such a task seems practically impossible, and the circumstance that the forms of the hieroglyphs were changed several times in this short interval, for no apparent reason, certainly does not speak for such an interpretation.

To expect us to believe that the large Casa de las Monjas, the massive Akab Tzib, the Casa Colorada, the Temple of the One Lintel, the Temple of the Four Lintels, and the Temple of the Initial Series all were inaugurated in 10.3.0.0.0 is asking too much of our credulity.

Fourteen of the seventeen dates in Thompson's list still have Old Empire datings. Now, we know quite a number of monuments of this period from various sites, and they show no stylistic differences from inscriptions preceding them by several Katuns. The only Chichen Itza inscription with the same old Cauac and Kin forms is that of the Akab Tzib. It is, therefore, clearly Old Empire. All the other texts have glyph forms that differ more or less from the types in vogue at 10.3.0.0.0 and, therefore, are later. The less differentiated are nearer to that date, and those that agree in some respects with the forms of the codices, i.e., the forms in use at the beginning of the sixteenth century, naturally are nearer to that period. These relations come out clearly in my table of the Gradual Transformation of Hieroglyphic Forms.

Thompson says the "stone lintels were never used for important doorways during the period of Mexicanized architecture" (p. 190), using this assertion against my date interpretations. In reality, however, the Nahuas at Chichen Itza used wooden lintels as well as stone lintels. The Caracol is full of the latter, and Ruppert knows of three more in different edifices of that city.[4] The detached building, called La Iglesia, of

[4] Ruppert, 1935, p. 274.

the Monjas also has a stone lintel, and it surely is a Nahua construction, having in its mural decoration the Conch and the Turtle Man. At the Caracol at Mayapan and the temples at Tulum, also, stone lintels have been used in buildings of Nahua style. On the other hand, the pure Maya cities of Tikal and Palenque used practically nothing but wooden lintels, and they are employed occasionally at other Maya sites (for instance, at Toniná). Uxmal has only wooden lintels, although the Mexican influence there is much less pronounced than at Chichen Itza.

Thus it is not sound scientific reasoning to base far reaching inferences on the material used for lintels. On the whole, we reach the conclusion that Thompson's arguments do not stand critical examination and that this new method cannot interpret the data adequately.

My own list (Table I) may be partly or entirely wrong, but it certainly does not imply the crowding of buildings into one Katun. Stylistic changes appear gradually.

As a logical consequence of his new method, Thompson has to attack my thesis of the stylistic changes of the hieroglyphs. There are, indeed, only two alternatives: (1) if the transformation of the glyph forms is accepted, there can be expected only Old Empire forms at 10.3.0.0.0; (2) if at 10.3.0.0.0, Old Empire, Transition, and Late forms occur, that classification is arbitrary and we are dealing only with irrelevant variations that can come into existence at any time.

The unsophisticated reader probably will decide that one hypothesis is just as good as the other. This, however, not only would be shunning the real issue, but would be showing little discernment. The two hypotheses are not of equal value.

In the many specimens of Cauac contained in the three preserved Maya codices, there occur only the type with the dotted element to the left. On the contrary, during the Old Empire down to 10.4.0.0.0[5] the type with the dotted element to the right is prevalent. There occur a few anomalous cases, but they have clearly the character either of exceptions or special cases. Between the two periods lies the one in which most of the inscriptions at Chichen Itza were produced, and their Cauac and Kin types offer intermediate forms. Without these Chichen Itza Cauacs, with dotted elements on both sides and Kins with tilted strokes, we would be unable to conceive how the Old Empire forms could have changed into the quite different forms of the codices.

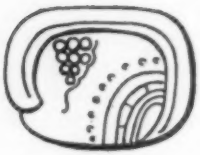
On the other hand, if for 10.2.0.0.0 and 10.3.0.0.0 we admit the pres-

[5] Beyer, 1932.

a

b

c



d

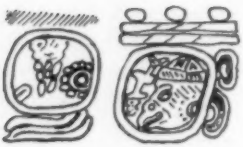
e

g

h

f

i



j

ence of Cauacs with double and left-side dotted elements—not as a rare exception, but as normal forms—then Chichen Itza would stand apart from all the rest of the Maya cities.

Thompson deals with the stylistic differences of the hieroglyphs, and while I, for good reasons, distinguish the small Cauac from that of normal size, he throws together (p. 191) normal Cauacs with all kinds of loosely-related bizarre forms. For a serious stylistic treatment, we must at least treat separately (1) the normal Cauac, (2) dwarfish and laterally-compressed forms, (3) Cauac as affix, (4) the Carrying Strap hieroglyph decorated with a Cauac, (5) a Cauac derivate with two or three lobes at the bottom, (6) another one in the shape of a cross, (7) the hieroglyph of the Rain Cloud, and (8) a board decorated with Cauac elements. A few other forms might still be made out in the texts.

Of the normal Cauac we have specimens in Fig. 34 *d* and *g*. For type 5, an example from Palenque is reproduced in Fig. 34 *a*. Compare it with the three-lobed variant from Chichen Itza (Fig. 302 of my *Studies*). Both, clearly, have bilateral symmetry and so have the other examples not reproduced here, while this feature is not found in Old Empire normal Cauacs. Type 7 is represented by Fig. 34 *b*, from a Hotun glyph, which is an exceptional case. The hieroglyph occurs at Copan on Stela B (twice), Stela I, Stela J; at Quirigua on Stela C; and on the Zoomorph P (as decoration); at Piedras Negras on "Lintel" 3, etc.; and in quite a number of representations in the codices. The bizarre outline distinguishes this form easily from the normal Cauac. The Cauac elements are employed in different parts of the sign and the Lamat center is sometimes added. I shall treat this curious symbol in a separate paper. For type 8, I give two variants from the Codex Tro-Cortesianus (Fig. 34 *c* and *f*). The Cauac elements again are irregularly distributed.

Although Thompson affirms that detail may be clearly seen in the inscription on Stela 10 at Tikal, it is my opinion that the monument is badly battered and the superficies of the hieroglyphs so eroded that it is extremely difficult to perceive the vestiges of incised lines and low relief in Maler's photography.[6] Since we do not have inked paper rubbings

[6] Maler, 1911, Plate XXI, Fig. 3.

FIG. 34.—*a*. Hieroglyph with Cauac elements (Palenque, Temple of Inscriptions, middle panel, 13). *b*. Hieroglyph of the Rain Cloud (Copan, Stela 1, Glyph 11). *c* and *f*. Boards with Cauac elements (Codex Tro-Cort, 101, and 81). *d*. Cauac, main sign of Tun (Copan, Stela 9, A 10). *e*. Day and Night (Holactun, North Building, Glyphic Group, Inner Panel). *g*. Cauac (Yaxchilan, Lintel 36, A 3). *h*. End Kin (Holactun, North Building). *i*. Hieroglyph (Holactun, North Building, east inner wall panel). *j*. Tuns, 13 Ahau (Holactun, North Building, east column).

of that inscription at our disposal, we had better abstain from too definite statements. In glyph 8 of this inscription, Thompson thinks the infix is on the left side. I notice in both Cauacs a large incised curve to the left and traces of another one to the right. The following glyph shows faintly, in its second Cauac to the right, three dots as part of a curve. The curved line to the left may form part of a "mouth" which sometimes is added to normal Cauacs (see Fig. 35 *a–d*). This detail is also present in Fig. 34 *j*, and Fig. 36 *a* and *b*.

FIG. 35.—*a*, *c*, and *d*. Cauac, main sign of Tun (Chichen Itza, Akab Tzib, a, H2; Copan, Stela C, Glyph 11; and Copan, Stela C, Glyph 10). *b*. Cauac, in compound (Palenque inscription in Archaeological Museum, Madrid: after Lothrop).

Leaving this doubtful case, I can say that for the Old Empire Cauacs two periods can be established. In the earlier period, only Cauacs with a dotted element having curved parallel lines and small perpendicular strokes appear, that is, a variant of Landa's "I" (Fig. 34 *d* and *g*). There seems to occur no exception in the specimens of this type; yet in some cases the small strokes either are indistinct or omitted. In the second and later period, several variants (the cross hatched circlet or oval, the same without cross hatching, two teeth, and a loop) are contemporaneous.

For the earlier period, there are found specimens from about 9.4.0.0.0 on, but it commenced probably long before that date. This type still is found at 9.10.10.0.0 at Naranjo, but at Copan and other cities evidently it was replaced by the varied elements at least two Katuns earlier.

The stylistic criterion is a powerful, but also a delicate, instrument which must be handled with the technique of the artist and not that of the journeyman. To attempt to discredit such a fruitful method certainly is not doing a service to science, but is shortsighted partisanship.

After having treated at some length the two important problems of the meaning of the Tun-Ahau combinations and the stylistic considerations, we come now to a number of questions concerning detail of head numerals, day signs, etc. On these points, Thompson's opinions are well

worth discussion and I am not unwilling to accept some of his suggestions, although in most of the cases no definite solution can be reached, since two or three different explanations are possible.

For instance, the head numeral of one of the two dates of the Casa Colorada to which I gave the value 9 can just as well mean 4, and less probably 7. But it is atypic for either one. To be 9, it should have a different eye, as Thompson observes (p. 181). For 4 and 7, it ought to have a long filed incisor and no dots on the cheek. Furthermore, for 7, it should have a twisted element over the nose. Thompson's assertion, "The head in question has pendant from the optical scroll small circles which are found only with the head for number seven," surely is wrong. A perusal of one of Maudslay's volumes would have shown him that any head with bulging eyes can have the surrounding line with circlets. What characterizes the God of Number 7 is not the large eye with encasing line and circlets, but a peculiar ornament in the form of a narrow band twisted over the nose and hanging in a curve under the eye. An easy way to verify my statement is to consult page 164 of Spinden's *Reduction*, where nine (because figure *i* is the Sun God) variants of the God of Number 7 are collected. Three of the specimens have not a bulging but a normal eye, and show distinctly the twisted band as an independent element. Since the head numeral of the Casa Colorada clearly has not this ornament, but simply the eye line with circlets, the reading 7 is less probable than 4.

Curiously enough, later on (p. 186) Thompson propounds 9 and 1 as possible values for a certain head numeral from Halakal which I read 4. Here the large eye does not seem to bother him. Can it be because 9 here is one of the two numerals that "fulfill the requirement"? A few additional remarks may help to clarify the question of the possible variants of the head numeral 7.

The Old Empire forms of the God of Number 7 have as characteristic traits: (1) a twisted ornament over the nose and under the eyes; (2) jaguar's ears above, or instead of, the human ears; (3) filed incisors; and (4) a beard or beard-like appendage. While trait 1 always is present, one or the other of the others may be missing, especially in the smaller representations like head numerals.

Now, glyph 27 of the Casa Colorada has none of them at all. It might be objected that this specimen is much younger, and therefore that the deity has changed somewhat. That is quite possible, but since we possess no authentic representation of number 7 as face numeral from Chichen Itza, we cannot tell how it should look. However, the Casa Colo-

rada belongs to a relatively old period and we can therefore expect some old traits still to be in use. There are, indeed, a few representations of the God of Number 7 known from Yucatan where he still preserves the characteristic twisted ornament. Seler published the drawing of a miniature mask from the eastern wing of the Monjas, Chichen Itza,[7] and Spinden, a cornerstone from Labna,[8] both clearly with the curled nose detail. The Labna piece now is in the Museum in Merida, but evidently erroneously labeled "Casa de las Palomas, Chichen Itza." Another very similar stone of the same museum is labeled "Uxmal."

To decipher the head numeral in the passage of the Hieroglyphic Band, 18 (my figure 693) as 4, as Thompson is inclined to do (p. 182), is inadmissible since this head lacks the bulging eye which is always found in heads for 4, the long incisor, and other characteristic details. If the symbol on top of the head were more indistinct, I would rather think of the numeral 5: an old man's head with Tun. However, the symbol clearly is not Tun, and most probably is Day Sky. Thus, after all, the reading 12 is the best.

To read the passage 0 22–0 23 on the Caracol Stela (my figure 772) as referring to 11.3.17.(0.0) seems to me much more natural than Thompson's somewhat artificial interpretation (p. 183).

Thompson thinks that Morley and I wanted to "get around" something when we determined the day sign on the Water Trough as Kan instead of Ben (p. 184). I cannot speak for Morley, but so far as I am concerned my reasons were, in the first place, that the lower part of the day sign is not characteristic for Ben but for Kan, as a comparison with the following glyph (Cumhu) shows. In the specimen of Ben on Lintel 30 at Yaxchilan, which Thompson adduces, the vertical lines are not equidistant, but form two separate pairs, and they do this also in the Ben at Tikal (Lintel 1 of Temple 2). Furthermore, the gap between the two upper details in the Chichen Itza hieroglyph has irregular superficies, so that two more "teeth" may have been rubbed off or weathered. However, the case is not clear and Ben may really be the sign represented, the atypic lower half being due to carelessness of the sculptor.

Concerning the classical Cauac on the newly-deciphered inscription (p. 189), we had better wait for confirmation or refutation. I have written to Professor Barrera, director of the Museum in Merida, and he answers: "Desde luego el dibujo de Miguel Angel Fernandez es una restauración; el original está en tal estado que no me comprometo a dar ninguna sugestión con respecto a lo que realmente contenga."

---

[7] Seler, 1915, p. 224. [8] Spinden, 1913, p. 17, Fig. 1*d*.

Commenting on the inscriptions of Holactun (p. 193), Thompson refers to Fig. 34 *e* as meaning "1 ? 1 Mac." He says about the first hieroglyph that it "is unlike anything yet identified as a day sign." It certainly is so, and this for the simple reason that it is not a day sign, but the sign for "day" (Kin) itself. The hieroglyph for Kin occurs in the Holactun texts several times in similar form, so that one is enabled to determine it correctly. Fig. 34 *h* reproduces one of these variants with the characteristic Sun Beard as subfix. The second hieroglyph in Fig. 34 *e* most probably means "1 Night" (Akbal). Akbal seems to be employed also a few times in similar form at Holactun. The double hieroglyph Kin-Akbal is found as glyph group on the monuments as well as in the codices.

The Calendar Round date, then, exists only in imagination.

The two Tun dates (Tun 2, 2 Ahau; and Tun 17, 4 Ahau) are followed by a hieroglyph (Fig. 34 *i*) which in Old Empire texts is characteristic for Secondary Series. Thus, it may serve here to give the Periods and Ahau dates that meaning. It could be used as corroborative proof for the idea that the number of Tuns leading to a certain Ahau date are represented and not definite Tuns in the Long Count.[9]

There exists another Tun-Ahau statement in the Holactun texts (Fig. 34 *j*); this time not accompanied by the Secondary Series sign. The numeral above the Tun glyph is destroyed (or indistinct in the small photograph at my disposal). The Ahau is the bird variant with a peculiar element in front; its numeral is 13.

It is more natural to see a Calendar Round date in the first two hieroglyphs on the south jamb of building 1 at Kabah and not the reversed statement "2 ? Tuns, 11 Ahau" (p. 193).

The stone rings in the Ball Court of Uxmal have been destroyed intentionally, as Seler pointed out.[10] Indeed, the breaks are sharply cut and cannot be the results of natural agencies. Only a few of its hieroglyphs remain in their ancient places: those near the salient part that fixes the ring in the wall.

Morley has joined one of the loose fragments to the one still in place on the east side, which is justified. In the same way, we can combine another fragment to the remaining part of the west wing. In order to make the discussion of the data easier, I have arranged both passages in straight alignment in the sketches reproduced here as Fig. 36 *a* and *b*.

Concerning Fig. 36 *a*, I agree with Morley's reading: Ix 16 Pop, end-

---

[9] Beyer, 1937, p. 145. [10] Seler, 1917, p. 120.

ing sign, Tun 17, ending on the day 12 Ahau.[11] Only the numeral of the Ahau is not entirely safe, 13 seems also possible. The fancied resemblance, dwelt on by Thompson (p. 194), of the day sign, which Morley and I read Ix, to Ahau, cannot be upheld: it is a typical Old Empire form of Ix.

On the other hand, Thompson is right in rejecting Morley's interpretation of the day of the Calendar Round Date in Fig. 36 *b* as being

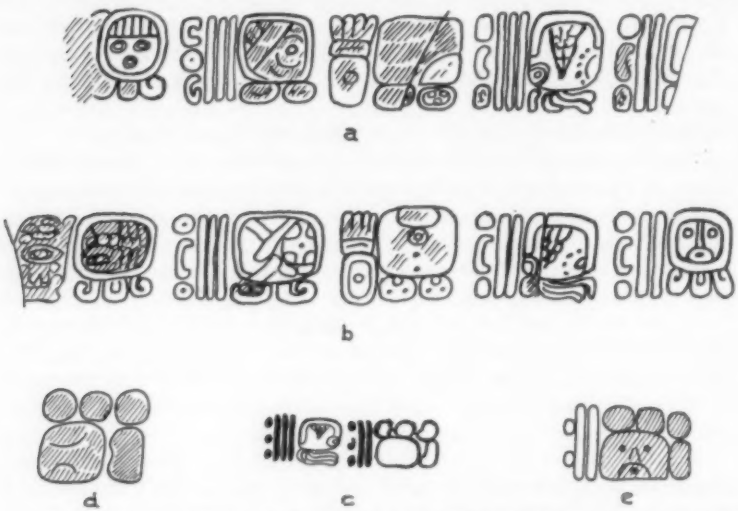


FIG. 36.—*a*. Ix 16 Pop, end of 17 Tuns, 12 Ahau (Hieroglyphic Passage on east ring of ball court, Uxmal). *b*. 17 Pop, end of 12 Tuns, 12 Ahau (Hieroglyphic Passage on west ring of ball court, Uxmal). *c*. 18 Tuns, 13 Ahau (capstone of Monjas, Uxmal: after Morley, but inner lines of second glyph omitted). *d*. Ahau (Chichen Itza, Monjas, C5). *e*. 12 Ahau (Chichen Itza, Caracol Stela, M6).

also Ix. It certainly is not, unless we admit the possibility that it is represented by a jaguar's head. Unfortunately, the head is indistinct, but hardly can it be that of a jaguar. It might be Chicchan, or Oc, or Men; even Cimi is possible. The month sign clearly is Pop, and it is more characteristic than the one on the opposite ring. The numeral 17 also is perfectly legible, so that Seler's assumption that both rings represented "16 Pop"[12] proves to be wrong. The Tun 17 of Morley and Thompson is an

[11] Morley, 1920, pp. 514–515. [12] Seler, 1917, p. 120.

error; there are only 12 Tuns represented. Finally, 12 Ahau is sufficiently clear on this ring.

The month position 16 Pop cannot be combined with the day sign Ix in Old Empire practice. Thus, we have either to assume an error of the sculptor, or, the employment of the late Yucatecan method with shifted position, as Morley does. The latter assumption seems to me better, since somewhere in Yucatan this new custom must have been started. If this view is right, we have to infer that the Ball Court inscription is relatively late. The fact that the ending sign before the Tuns occupies a whole glyph block speaks also for the late character of the inscription, since this same form occurs at the Hieroglyphic Band, and the Temple of the Four Lintels at Chichen Itza and at Yulá. Uxmal, however, preserved its Old Empire Cauac.

If the second Calendar Round date (Fig. 36 *b*) also is in new style, the day sign must be either Chicchan, Oc, Men, or Ahau. Most probably it is not the last, but a decision among the remaining three would be venturesome, as the day could be any of them.

Supposing the last three hieroglyphs in Fig. 36 *b* to mean "End of Tun 12, 12 Ahau," it can practically only refer to 10.19.12.0.0, 12 Ahau, 8 Muan, corresponding to 1216 A. D. The next following possible date 11.12.12.0.0, 12 Ahau, 3 Tzec, would fall in the year 1472, when Uxmal already was abandoned, while the previous one, 10.6.12.0.0 (=960 A. D.) seems altogether too early for the shifted month position. The Tun date in Fig. 36 *a*, then, most probably would be 11.2.17.0.0, 12 Ahau, 8 Kayab, corresponding to 1280 A. D. Between the two dates exists a difference of 65 Tuns or 64 Maya years+40 days.

Since the case of the Initial Series lintel at Chichen Itza shows clearly that the irregular date (here the day of the Initial Series) does not lie in the same Tun as the Tun-Ahau combination, it seems unpromising to speculate on a possible reading or reconstruction of the two Calendar Round dates in Fig. 36 *a* and *b*.

Morley, Spinden and Thompson have read the calendrical statement shown in Fig. 36 *c*, extracted from a painted inscription on a capstone of one of the Monjas buildings, as "Tun 18 of a Katun 13." By analogy with the many similar glyph groups at Chichen Itza, however, it should mean: "Tun 18, 13 Ahau." The outlines of the second hieroglyph, indeed, are in complete agreement with the contours of the hieroglyphs (Fig. 36 *d* and *e*) which undoubtedly are representations of the day sign Ahau. Therefore, I take the liberty of reading it this way, namely, as 13 Ahau, and to believe that Morley interpreted some vestig-

es of lines in the interior of the hieroglyph arbitrarily as parts of a Tun sign. A Katun sign with a postfix would be unique, none of the authentic Katuns in Bowditch's plates[13] have such an appendage.

BIBLIOGRAPHY

BEYER, H.
1932. *An Ahau Date with a Katun and a Katun Ending Glyph.* Tulane University, Middle American Research Series, No. 4, pp. 133–135. New Orleans.
1937. *Studies on the Inscriptions of Chichen Itza.* Carnegie Institution of Washington. No. 483, pp. 29–175. Washington.

BOWDITCH, C. P.
1910. *The Numeration, Calendar Systems, and Astronomical Knowledge of the Mayas.* Cambridge, Mass.

MALER, TEOBERT
1911. *Explorations in the Department of Peten, Guatemala.* Memoirs, Peabody Museum of Harvard University, V, No. 1.

MORLEY, SYLVANUS G.
1920. *The Inscriptions at Copan.* Carnegie Institution of Washington, No. 219. Washington.

RUPPERT, K.
1935. *The Caracol at Chichen Itza, Yucatan, Mexico.* Carnegie Institution of Washington, No. 454. Washington.

SELER, E.
1915. *Gesammelte Abhandlungen zur amerikanischen Sprach- und Alterthumskunde, 1902–1923.* Berlin.
1917. *Die Ruinen von Uxmal.* Abh. K. Preuss. Akad. d. Wiss., Phil.-Hist. Klasse. Jahrgang 1917, Nr. 3. Berlin.

SPINDEN, HERBERT J.
1913. *A Study of Maya Art.* Memoirs, Peabody Museum of Harvard University, VI. Cambridge, Mass.
1924. *The Reduction of Mayan Dates.* Papers, Peabody Museum of Harvard University, VI, No. 4. Cambridge, Mass.

THOMPSON, J. ERIC.
1927. *A New Method of Deciphering Yucatecan Dates with Special Reference to Chichen Itza.* Carnegie Institution of Washington, No. 483, pp. 177–197. Washington.

Tulane University
New Orleans, La.
June, 1940

[13] Bowditch, 1910, Plate 14 (Periods—Normal, Katun) and Plate 19 (Katun).

A PROBABLE ASSOCIATION OF MAMMOTH AND ARTIFACTS IN THE WILLAMETTE VALLEY, OREGON

L. S. CRESSMAN and W. S. LAUGHLIN

SOME eleven years ago, about three miles outside of Lebanon, Oregon, on the north side of an extension of the foothills of the Cascade Range, a rancher, in cleaning out his spring, discovered a fossilized bone of a large mammal. In response to his communication, Dr. S. B. Laughlin of the Department of Sociology at Willamette University, in Salem, went to the site with Professor Monk and Professor Clark, and carried out an excavation. Part of a mammoth tooth was found, a portion of a tusk, and a small bone chisel made from the rib of a mammal perhaps the size of a deer.

This locality was called to the attention of the Department of Anthropology at the University of Oregon by Professor Laughlin's son within the past year; and in May, he and Cressman, with a number of assistants, went to the site to carry out further excavations. It had been originally reported that the bone chisel had come from the same bed from which the mammoth remains had been taken. In view of the association of man with the extinct fauna of south central Oregon which had recently been established, there was the possibility of the association existing here.[1]

The spring is located in a very slight swale-like depression on the north side of a ridge at an elevation of probably 800 feet. The maximum elevation of the ridge is 1155 feet. It is separated from the nearest extension of the Cascade foothills by a draw in which the maximum height is

---

[1] *See* L. S. Cressman, "Early Man in South Central Oregon" (read at Pacific Science Congress, Stanford University, August 1939; in press for *Proceedings, Pacific Science Congress;* Cressman, "Early Man and Culture in the Northern Great Basin Region of South Central Oregon," *Carnegie Institution of Washington Year Book, 1938–1939,* No. 38, pp. 314–317 (December 15, 1939); Cressman, "Early Man and Culture in South Central Oregon," *Report of Committee on Research, American Philosophical Society,* Grant No. 302 (1939), pp. 194–196 (reprinted from *Year Book of the American Philosophical Society for 1939,* pp. 147–326); Cressman, Howel Williams, and Alex D. Krieger, *Early Man in Oregon: Archaeological Studies in the Northern Great Basin,* University of Oregon Monographs, Studies in Anthropology, No. 3, August 1940; Merriam, John C., President-Emeritus, Carnegie Institution of Washington, "Paleontological, Geological and Historical Research," pp. 306–308 (reprinted from *Carnegie Institution of Washington Year Book, 1938–1939,* No. 38, pp. 301–310, December 15, 1939); and Cressman, in *Carnegie Institution of Washington Year Book, 1939–1940,* No. 39, pp. 300–306.

534 feet. The elevation of the Santiam River, which flows west along the south side of the ridge and then north around it is 346 feet.[2]

The spring had been originally cleaned out to a depth of about five feet, and was now being used as a source of water for cattle. We drained and baled out the spring, which was in the bottom of a hole eight by six feet along the two axes. The long axis extended in a line N. 20° W. from the rear toward the front of the excavation. The walls of the excavation when cleared of the accumulated deposit showed a top bed of brownish soil extending from the surface to a depth of 0.48 meter. Here it rested on an uneven blue clay bed which continued an indefinite distance—at any rate beyond the bottom of the excavation. The blue clay was somewhat lighter in the upper part of the bed, that is, to a distance of about 0.75 meter, where it became darker. In the bottom of the clay bed (i.e., at the bottom of the excavation) there were a great many fairly rounded stones, from a size somewhat smaller than one's fist up to perhaps twice that large. A few smaller stones, up to one and one-half or two inches in diameter, were found scattered throughout the blue clay. Occasional pieces of chalcedony, possibly worked, were also found.

In the brown soil, small pieces of igneous rock, chalcedony, and jasper were found. Worked fragments of chalcedony and jasper were found in the brown soil bed.

The stones from the blue clay bed were all weathered. They broke easily under a blow of the geologist's pick, and showed distinct rings of discoloration from weathering. The specimen shown in Plate XXV *d* has a margin of weathering varying from 0.5 mm. to 3 mm. The stones from the brown soil, in contrast with these, show no weathering; all surfaces are sharp. The stones from the blue clay bed show different degrees of rounding, as though they might have been washed by stream action. If such were the case, it would have to have been done by run-off from snow or rain coming down the draw. On the other hand, the roundness is probably due to weathering, as is shown by the stones which are in the blue clay beds which could not have been washed.

We found a portion of a mammoth tooth in the bottom of the excavation on the east side. This had probably been washed out of the wall by the accumulated spring water. On the west side of the excavation, we exposed other parts of the skeleton, but the bones, while partially fossilized, had so disintegrated under the action of the water which had

[2] Elevations are taken from the U.S.G.S. Topographical Sheet "Lebanon Quadrangle, Oregon," edition 1924.

seeped into them that it was impossible to expose anything more than small fragments for removal.

A portion of a large bone, the top of which was 0.95 meter beneath the surface and the lower end, 1.19 meters, was exposed. Removal of this bone was made impossible by its deteriorated condition and the pressure of the wet blue clay. In order to work here it was necessary to keep the hole baled out, as the spring constantly poured water into it. At 1.12 meters below the surface, or midway between the top and bottom points of this large bone, and immediately by it, was found what was apparently an artifact. This is shown in Plate XXV *b*. It is 53 mm. long and 30 mm. wide. It has apparently been chipped at one end to a cutting surface with the edge sharpened by retouching. Since the artifact was found imbedded in the blue clay, it could not have reached its position as a result of stream action. Furthermore, all the flaking occurs at one end with the exception of a number of random small chips from one other sharp surface. The other edges show no chipping. If the removal of the flakes was due to natural action, one would expect flakes to have been removed at random from all sharp edges. This is obviously not the case.[3]

These stones and this probable artifact were shown to Dr. John C. Merriam on a recent visit to the University of Oregon campus, and it was his statement that the specimen certainly appeared to have been artificially produced. This is offered as independent evidence which tends to corroborate the opinion of the writers.

In order to check the reported association of the bone chisel with the mammoth remains, two tests were made. Was the chisel fossilized? What was the nature of the soil deposited in the exposed cellular structure of the chisel? The results of these tests were (1) the bone showed no fossilization, and (2) microscopic examination of the soil from the cellular structure showed that the chisel probably came from the brown top bed, but at any rate not from the blue clay bed, and is, therefore, not associated.

---

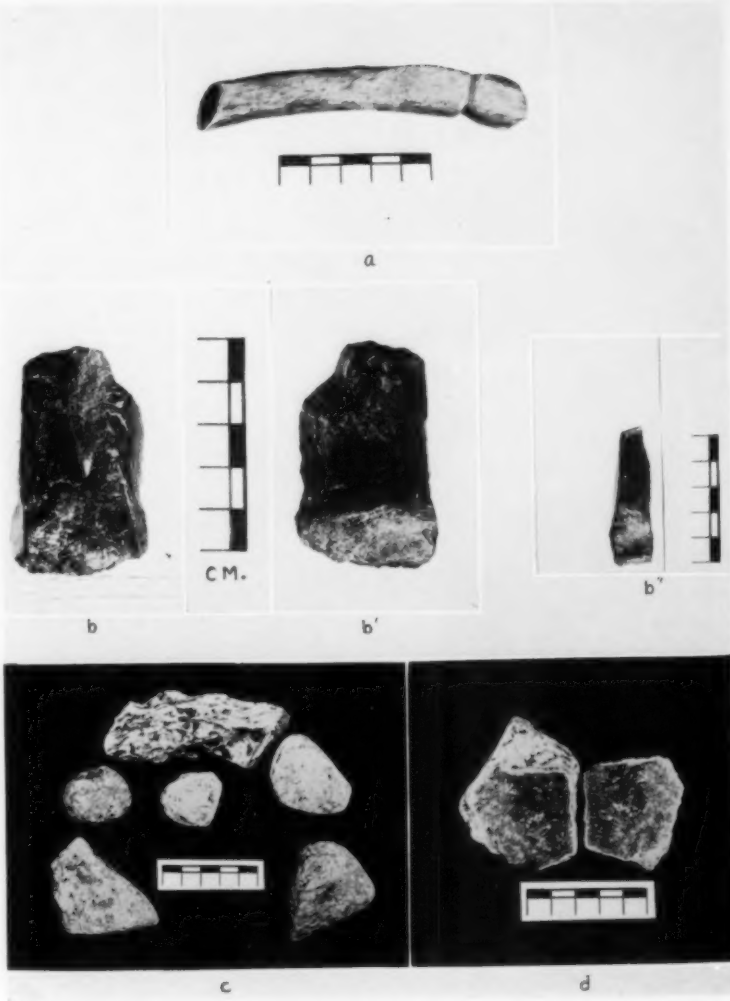
[3] Mr. Robert E. Brooke, laboratory technician in the Dept. of Geology at the University of Oregon, prepared a thin section of the artifact and submitted the following report: "Highly silicious with undeterminable grain sizes. Appears to have an alteration zone about $\frac{1}{8}$ to $\frac{1}{4}$ inch around the outside. Largely stained with iron oxide and possibly a slight alteration to kaolinite, which probably means it has been exposed to weathering over a long duration. It was probably originally a high temperature vein product. I would say that it closely resembles a jasper."

The evidence[4] at this site tends to indicate that in the Willamette Valley we also have association of artifacts with an extinct late Pleistocene or early Recent fauna.

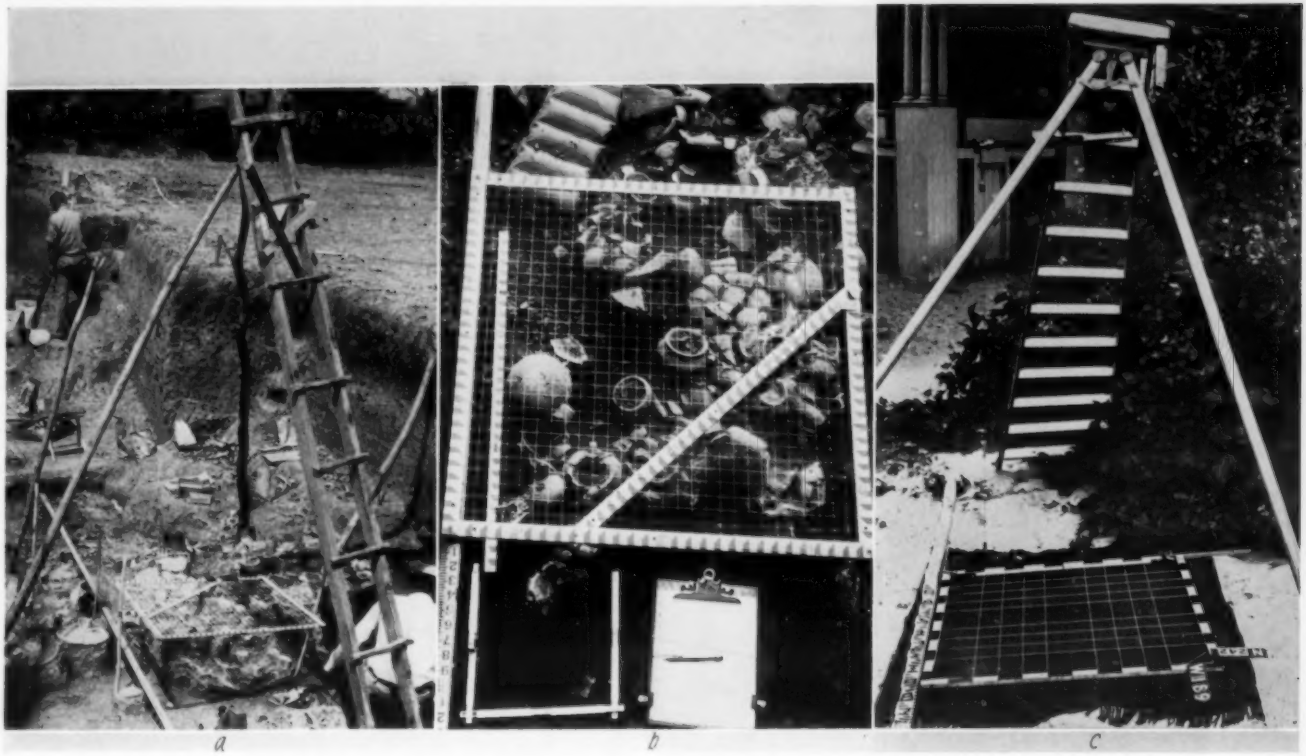
University of Oregon
Eugene, Oregon

Willamette University
Salem, Oregon
August, 1940

[4] The specimens referred to are in the Museum of Anthropology at Willamette University, Salem, Oregon.



Probable artifacts, and pebbles, Willamette Valley, Oregon. *a*. Problematical bone artifact, perhaps a chisel. *b*. Probable stone artifact, bottom view; *b'*. top view, showing worked surface from above, right upper portion; *b''*. side view at right of *b*, showing chisel-like cutting surface. *c*. Pebbles from blue clay bed, top piece is chalcedony. *d*. Broken pebble from blue clay bed, showing the zone of weathering.



Photographic Surveying. *a*. Grid and ladder in position for vertical photograph. *b*. Oblique view of grid. *c*. Suggested improvement, tripod ladder in position.

FACTS AND COMMENTS

PHOTOGRAPHIC SURVEYING

At Sitio Conte, province of Coclé, Panama, the 1940 Pennsylvania University expedition led by Dr. J. Alden Mason resumed, after seven years interruption, the field excavation begun by the Peabody Museum of Harvard University and described in the monumental memoir by Dr. S. K. Lothrop.

The use of every time and labor saving device (even a transit) was justified by trench temperatures at times exceeding 120 degrees. However, this description will assume that no transit was available: limiting working tools to a level, an opera glass, plumb lines, lantern, and measuring tape. A compass might have sufficed for laying out the north-south reference line but stars are more accurate.

Forty centuries before telescopes made possible a greater precision, the ancients were able to orient a pyramid true north within 3 minutes 23 seconds of arc, the error being about one part in a thousand. Ordinary engineer's transits are accurate to the nearest minute.

At home in northern latitudes three second magnitude stars in line, namely, Mizar, the well known double star next to the end of the handle of the Big Dipper, then Polaris, and, third, Delta Cassiopeia, next to the left end of the W; locate the true pole at once when all three fall in line with your plumb string sight. An almanac table records the local time of this upper culmination, and at Sitio Conte we were west of the standard time 75th meridian about 5½ degrees, which at 4 minutes per degree gave 22 minutes correction to radio time.

In February, it was more convenient to use Polaris six hours later at Western elongation, when the motion for half an hour is negligible and the W in the west and Big Dipper in the east indicate the proper time closely enough. Seated with opera glass south of the south plumb line marking the trial 100 meter reference line, the north end of which is illuminated by a lantern, it is easy to bring the near string in line with the far string and Polaris. This time however the trial line does not point true north but 1° 2′ west hence we lay off the tangent of 1° 02′ namely 1.804 meters at one end of the 100 meter reference line for true north. Such care is of course only justified on work of considerable importance. At Coclé, we were unable to recover a single bench mark or referenced coordinate of the excavation work done seven years before. The silt however preserved a perfect cast of a native ladder, notwithstanding that the wood had completely disappeared, in a trench corner easily identified from a published photograph.

Fairly permanent bench marks, wherever convenient, were marked by a nail and washer in a tree root, and in addition to the field book record it is well for possible future use to leave at each, stamped with steel dies on a tag of sheet lead, the elevation to millimeters, and the northing and westing to the nearest centimeter.

One way of locating Sitio Conte is to say "It is about five miles northeast of the nearest village, Nata." When the latitude and longitude are available (and they were for the archaeological sites area of Fig. 19 of the Coclé memoir) it is preferable to designate Sitio Conte as 8° 22.8′ north; 80° 29.2′ west. Think of the confusion saved in the Maya area had similar coordinates been determined for each archaeological site!

Ordinarily, excavated objects are located by a "depth below ground surface" and two measurements (requiring plotting) from reference stakes north and south placed say ten meters apart on a north-south line determined by compass. This paper advocates instead,

Photographic Surveying. *a*. Grid and ladder in position for vertical photograph. *b*. Oblique view of grid. *c*. Suggested improvement, tripod ladder in position.

elevations referred to a fixed datum, chosen low enough to make minus values unnecessary.

Similarly, after laying out a reference line due north, it is easy to assume an origin of rectangular coordinates well to the south and east of any probable excavation; and then but two letters are required namely an "N" to designate northing, and a "W" to designate westing from this same arbitrary zero.

A nail and washer at any even coordinate may bear a labelled tag, or better 1½″×2½″ tile numbers (size #31 of the Cambridge Tile Mfg. Co. of Covington, Ky.) which may be left in place in spite of high winds and watering pots which made cardboard calendar numbers less desirable. If set to read right side up when looking forward along respective coordinate lines, the customary direction arrow is not needed. Each photograph is completely identified by the coordinate numbers plainly showing in the picture. A complete description for instance is 134N 89W 2.43L. The last named, meaning elevation, is marked in red pencil.

Red crayon was reserved exclusively for elevations, at benches and at even unit heights marked on the excavation walls. Burials and sherd groups were given identification numbers in black, and bags in which they were later packed were marked correspondingly, the elevation in red was marked thereon (or on the photo enlargement or plan sketch) without danger of confusion; furthermore, it was not necessary to label the red figures "elevation" except occasionally.

Just as habit accustoms us to positional notation in arithmetic, so it is easier to always observe the same order, first "north," second "west," third, in red, "elevation." Then the designating letters become superfluous.

For levels, we prefer the Chicago type of rod, graduated from the top downward, in place of the more customary Philadelphia self-reading type graduated from the bottom upward, for it makes graphically all minus sight subtractions,which are tedious to record and calculate when elevations for a hundred or more pots are taken from the same height of instrument.

Use of the Chicago rod, however, involves two features the novice may object to, namely, movable numbers at each even meter (or foot), and a foot piece sliding an entire meter (or foot). Thus, when working in feet, if the rod is held on BM elevation 13.74, it is clamped at the height when the level reads 3.74; then, if held on a surface say at elevation 9.86, the rod actually reads 9.86, the finally computed true elevation being at once available for direct recording on sketch or photo enlargement.

The accompanying photograph (Plate XXVI*b*) shows the unit square made of yard sticks we happened to have with us at Coclé. Our rods, too, were in feet: one Chicago rod and another "tape rod" graduated to hundredths which we tacked to a twelve-foot stick. This latter measuring rod was most useful because when once placed with meticulous care accurately along an even coordinate line, it served to locate with equal accuracy four settings of the unit three foot square on one side, then four more on the other side, a total of eight square yards area precisely located from one setting of the twelve-foot stick.

Ignoring the inches graduated on one side of the yard sticks, they were repainted on the upper side of the frame in tenths of feet. Our field clip boards accommodated standard eight and one-half by eleven inch note paper, some of which was cross ruled to five meshes per inch. The best scale for sketching these small artifacts and sherds was one-sixth natural size, the ten divisions of a two-inch square on the note paper corresponding to the ten divisions of a foot square on the measuring grid, which was strung with different colored string at the five and ten unit divisions. Greatly as this helped scale sketching,

it was of still greater usefulness in providing a decimally divided accurate foreground for photos taken vertically down from an improvised ladder (Plate XXVI*a*). Coordinate numbers identified each photo. Two photographs could be taken from a single ladder setting, by extending the camera holding arm, first 1.5′ right, then 1.5′ left, of ladder center. Focusing on the ground glass was easy for each position on a fourteen-foot ladder. Two sixteen-foot poles with forked ends formed, with the ladder, a stable tripod, but it required three workmen to adjust the setting.

As an improvement for future use, another picture (Plate XXVI*c*) shows a tripod ladder sold under the trade name of "Orchard Pippin" to local apple pickers. A special casting keeps the king-pin rigid at any angle or spread of legs and it is easily handled by a single person. Extension legs may be substituted if wanted. Knocked down and crated, the fourteen-foot size weighs sixty pounds and sells complete for sixty cents a foot up to sixteen-foot lengths. The Holland (Mich.) Ladder Co. sell the top step assembly for $3.25 and the long sticks may then be framed at the site. In this photo, we have sbustituted a decimally divided one meter square for the three-foot unit as better suited to general work. It was an objection to have the grid framing obscure the even measuring lines along the square's boundaries.

For graves of considerable depth, the parallax displacement necessitates resetting the grid at each elevation sketched, but sketching may then be limited to the uppermost layer, and after removal a separate sketch or photo made at the next lower level, etc. Where the pots have been ceremonially killed, literally hundreds of sherds become involved and most of these have a recognizable shape, still the labor of sketching each individually is almost prohibitive. These and the skeletal material may be photographed satisfactorily with far less labor, to accurate scale and position. A threefold enlargement from our $2\frac{1}{4}'' \times 3\frac{1}{4}''$ negatives provided the same scale (one-sixth natural size) as our standard sketches.

Each cluster of sherds could then be marked directly on the print with the identification bag number in black and, in red, the elevation of each highest fragment. Development and enlarging in the field, if practicable, is of great assistance.

To accomplish three times as much work in one-third of the time should appeal to us all. Ten years ago in central Europe, the writer saw how the progress on recording ninth century graves was greatly retarded by the draftsman, notwithstanding his working at top speed and overtime. First, his measurements of each important bone in the coffin were made and recorded in the field; second, they were plotted in the office; third, the final drawing was checked in the field; and, fourth, it was inked in at the office.

A frame two meters long by one meter wide strung up with decimal subdivisions would fit over the ordinary coffin, which the draftsman could straddle while sketching to scale on decimal section paper. From a sketch accurately to scale, as many future measurements could be made as might be desired. Cross sections could be taken directly from the sketches along any lines, as future excavation disclosed particular relationships. The upper material might be removed as soon as the adequate record was completed, and it would not have to remain in place, impeding adjacent excavation, until the final relationships were developed.

We hope to have proved: (1) that rectangular coordinates give locations better than the "triangle method"; (2) that they are easily laid out true north; (3) that decimal subdivisions of a grid permit direct scale sketching on ordinary section paper; (4) that eight square yards (or meters) are accurately controlled, from a single setting of a four meter measuring stick; (5) that, by using red pencil and a Chicago rod, hundreds of finally com-

puted true elevations may be recorded on the same sketch, without confusion and with a minimum of recording or subtracting; and (6) that photographing vertically down from a ladder effects still greater accuracy and speed. In short, we hope to have proved our opening statement: that photographic surveying very simply records, with ample accuracy, many details of intricate burials.

ROBERT H. MERRILL
Grand Rapids, Michigan

SUPPLEMENTARY DATA ON EARLY MAN IN AMERICA

E. H. Sellards' recent paper, *Early Man in America*,[1] was intended to be an index to all localities in which human remains are reported to have been found associated with extinct animals or in deposits that appear to be of an age equivalent to those that elsewhere contain extinct animals. The author states that some localities doubtless have been overlooked that should have been included.

It so happens that prior to writing the Folsom paper[2] to which Sellards refers, I had outlined a general discussion of Early Man in America. In so doing I came across a considerable part of the literature which was never reproduced in the abbreviated Folsom paper as published. A check with Sellards' paper allows me to add the following sites for which the same reservation holds which Sellards made, insofar as some of these sites might not meet the requirements of bona fide antiquity. Incidentally, all reliable reports of true Folsom points have been taken as indication of Early Man's existence, regardless of the circumstances under which the points may have been encountered.

Georgia

Macon Plateau: A Folsomoid stone culture. Collection in the National Museum, Washington, D. C. (Kelly, 1938.)

Kansas

Grinnel Leads, Gove County: Flint implement in 10′ of reddish clay under 14′ of top soil, (Wilson, 1862, p. 297.)

Wabaunsee County, Riley County: Folsom points. (Moorehead, 1900, p. 76, fig. 92d.)

Kentucky

Woodford County: Folsom point. (Moorehead, 1900, p. 171, fig. 253, 3.)

Minnesota

Forest Lake, Anoka County: Folsom-like point, mammoth in pluvial (?) gravel. Jenks believes the mammoth here to have been contemporary with man about 6000–7000 B.C. (Jenks, 1935.)

Mississippi

Tate County: Folsom points. (Brown, 1926, p. 134, fig. 33; p. 138, fig. 45.)

Missouri

St. Josephs, Buchanan County: First axe, deeply imbedded 20′ below surface. (Owen, 1906.)

---

[1] Sellards, 1940. [2] Fischel, 1939.

Jacob's Cavern, McDonalds County: Carved mammoth bone. (Allison, 1928; Moorehead, 1904 and 1931.)

New Hampshire

——— Folsom point found in situ, 3′ deep; now in Smithsonian Institution. (Howard, 1935.)

New York

Attica, Wyoming County: Mastodon and charcoal found in close association. (Clarke, 1903.)

Baldwinsville, Onondaga County: Folsom points. (Beauchamp, 1897, figs. 13, 14.)

Ohio

New London, Huron County: Grooved stone axe in blue clay 22′ from surface. (Claypole, 1896.)

Steubenville, Jefferson County: Flint implement, 10′ deep in undisturbed glacial gravel. (Wright, 1895). Holmes, 1893, and McGee, 1895, doubt or reject the evidence for glacial man here.

Tennessee

Blount County, McMinn County: Folsom points. (Fowke, 1892, figs. 188, 195.)

Big Bone Cave, Van Buren County: *Megalonyx* in association with burned torches; discovered by Mercer, 1897. (Harrington, 1935.)

Texas

Henrietta, Clay County: Folsom points, found in camp sites in terrace deposits. (Ray, 1935, pl. 9; Witte, 1935.)

Virginia

Green, Halifax, King Counties: Folsom points from eroded hill-tops. (Bushnell, Bureau of American Ethnology, Annual Report 1934–35.)

Wisconsin

Ozaukee County, Jefferson County: Folsom points. (Kuhm, 1934.)

BIBLIOGRAPHY

BEAUCHAMP, W. M.
1897. *Aboriginal Chipped Stone Implements in New York.* New York State Museum, Bulletin 16.

BROWN, CALVIN S.
1926. *Archaeology of Mississippi.*

CLARKE, J. M.
1903. *Mastodons of New York.* New York State Museum, Bulletin 69.

CLAYPOLE, E. W.
1896. "Human Relics in the Drift of Ohio." *American Geologist.*

FISCHEL, H. E.
1939. "Folsom and Yuma Culture Finds." AMERICAN ANTIQUITY, Vol. 4, pp. 232–264.

FOWKE, G.
1891–92. *Stone Art.* Bureau of American Ethnology, 13th Annual Report.
HARRINGTON, M. R.
1933. *Gypsum Cave.* Southwest Museum Papers, No. 8.
HOLMES, W. H.
1893. "Traces of Glacial Man in Ohio." *Journal of Geology*, Vol. 1.
HOWARD, E. B.
1935. "Evidence of Early Man in North America." *Pennsylvania University Museum Journal*, Vol. 24, Nos. 2–3, Philadelphia.
JENKS, A. E.
1935. "Field Work in Minnesota During 1934." AMERICAN ANTIQUITY, Vol. 1, No. 2.
KELLY, A. R.
1938. *A Preliminary Report on Archaeological Excavations at Macon, Georgia.* Bulletin 119, Bureau of American Ethnology.
KUHM, H. W.
1934. "The Folsom Point Controversy." *Wisconsin Archaeologist*, Vol. 14, No. 2.
MCGEE, W. J.
1895. "Man and the Glacial Period." *American Anthropologist*, O. S., Vol. 6.
MOOREHEAD, W. K.
1900. *Prehistoric Implements.*
1904. *The Exploration of Jacob's Cavern, McDonald County, Missouri.* Bulletin 1, Department of Archaeology, Phillips Academy, Andover, Mass.
1931. *Archaeology of the Arkansas River Valley.* New Haven.
OWEN, L. A.
1907. "A Palaeolithic Implement From the Loess." *Records of the Past*, Vol. 6.
RAY, C. N.
1935. "The Pottery Complex and Artifacts of the Abilene Region." *Bulletin 7, Texas Archeological and Paleontological Society*, Abilene.
SELLARDS, E. H.
1940. "Early Man in America." *Geological Society of America*, Bulletin 51, pp. 373–432.
WILSON, D.
1862. "Physical Ethnology." *Smithsonian Report*, Pt. III. Art Traces.
WITTE, A. H.
1935. "Archaeology of a Section of the Red River Upper Drainage." *Bulletin 7, Texas Archeological and Paleontological Society*, Abilene.
WRIGHT, G. F.
1895. "New Evidence of Glacial Man in Ohio." *Popular Science Monthly*, December.

HANS E. FISCHEL
Berkeley, California

NOTES AND NEWS

OBITUARY

Eugene Dubois

Word has recently been received that Dr. Eugene Dubois died at his country estate, "de Bedelaer," near Haelen, the Netherlands, on December 16, 1940. Born in 1858, he received a physician's training at the University of Amsterdam, following which he taught anatomy, at art school and in the University of Amsterdam. He was stationed in the Netherlands Indies as an army surgeon from 1887 to 1895, and it was during this period that he became interested in the bone-bearing beds on the Solo River, near Trinil, in Java, from which he secured the fragments of *Pithecanthropus erectus*. The fossil fragments were recovered from the river banks during operations that covered the years between 1891 and 1894, but the find was not made public for some time afterwards. Although violent discussions centered about the remains, the consensus of opinion has confirmed Dr. Dubois' assertions that he had discovered one of the most primitive forms of the hominid stock.

Following his discovery, Dr. Dubois transferred his interests to the field of Paleontology, Geology and Mineralogy, and Physical Geography, in which fields he was Professor at the University of Amsterdam from 1898 to 1929. He also served as Conservator and Curator of the Paleontological Department of the Teyler Museum in Haarlem. He centered the activities of his later years on *Pithecanthropus erectus*, and his studies of the evolution of man and the evolution of the brain.

He will be remembered as one of the outstanding contributors to the study of human evolution.

Jeremiah Beverly Lillard

Dr. Jeremiah Beverly Lillard died on January 20, 1941, in Sacramento, California. He was born in Goleta, California, in 1872. He received an A.B. degree from Stanford University in 1899, an M.S. degree from the University of Southern California in 1911, and an honorary degree of Doctor of Pedagogy from the same school in 1940. His positions in science and in education include: Secretary of the St. Louis Biological Society from 1902 to 1905; lecturer's chair in the University of California, Summer Sessions 1918 to 1924; professorship at the University of Michigan Summer Session 1929 and Presidency of the Sacramento Junior College from 1923 to 1940. His interest in anthropology crystalized in 1933 when he instituted an archaeological program at the latter institution and began the collections which are housed in the museum which now bears his name.

It is chiefly due to Dr. Lillard's unfailing interest and constancy of high purpose that the recent advances in California archaeology have been made. Much of the work that was done under his supervision is as yet unpublished but Bulletins 1 and 2 of the Sacramento Junior College Department of Anthropology bear his name as senior author. The professional loss is great but those who knew him will feel even more keenly the personal loss of this friend and teacher.

Charles Avery Amsden

Charles Avery Amsden, Vice-president of the Society for American Archaeology, died at Monrovia, California, on March 3, 1941, after a long illness. He was born in

Forest City, Iowa, in 1899, and had lived in Los Angeles since joining the staff of the Southwest Museum in 1927.

He received an A.B. degree from Harvard in 1922, after three years' interruption in war service, spent a year in post graduate work at the University of Toulouse, and five years as American Vice-consul in France, Switzerland, and Mexico. He was appointed Curator of the Southwest Museum, Highland Park, Los Angeles, in 1927, and in 1928 became its Secretary and Treasurer.

He was interested in the widest aspects of archaeological research, and particularly in the technological side of native crafts. This latter aspect of his interest led to the publication of "Navaho Weaving" in 1934. He was also interested in Pueblo history, and in early man in America. At the time of his death he was engaged in preparing a book on Southwestern Archaeology which was nearly two-thirds completed.

He is survived by his wife, father, and four brothers.

COMMITTEE ON ARCHAEOLOGICAL TERMINOLOGY

At the Indianapolis meeting discussion of archaeological terminology resulted in the appointment of a committee including Andrew H. Whiteford, Chairman; Richard G. Morgan; Charles G. Wilder and Vladimir J. Fewkes. Mr. Whiteford as Chairman reports that the Committee on taking stock of the problem realized that it was of such extent that it could only be handled with the assistance of sub-committees assigned to various fields; these have since been appointed for Pottery Artifacts, Stone Artifacts, Shell Artifacts, Pipes, Burials, Bone Artifacts, Field Methods, Design Elements and Motifs. The Committee on Pottery Artifacts has determined its immediate objective and has started work on the definitions of artifacts other than vessels, such as figurines and spindle whorls. The Committee on Stone Artifacts, faced with the problem of reconciling various plans for the nomenclature of objects within its field, has already sent out a questionnaire to a selected list of archaeologists. The Committee on Shell Artifacts is laying groundwork to aid in the solution of technical problems which face the archaeologist working in shell; this will include a list of the best and easiest references to aid in identification and a list of conchologists who will help with the work. The Committee on Bone Artifacts reports some progress and is circulating photographs among members. The several other committees have also taken steps toward outlining their problems. The program of the Committee contemplates circulating a preliminary questionnaire outlining the system of terminology to a group of archaeologists whom it is felt will give the most critical comments and the greatest returns. Work has proceeded slowly because of field work in the summer months and the need for blocking out the fields of endeavor. Once the groundwork has been laid it is felt that this project will gather momentum and can be expected to produce results over a term of years.

NORTHEASTERN AREA

Further discoveries relative to the remarkable Orient Focus, Coastal Aspect, reported on in previous issues of this journal (Vol. II, No. 1, p. 53 and Vol. II, No. 4, pp. 312–313) have recently been made near the eastern end of Long Island, New York, by Mr. Roy Latham, of Orient, Long Island, who describes them as follows:

"The casual discovery by the Long Island Chapter, New York State Archaeological Association, of a fourth site of the Orient Focus on the north branch of Long Island, during December, 1940, resulted in the exploration of approximately two-thirds of the

plot, which is situated on a prominent hilltop, before frozen ground stopped digging for the winter. The results confirm our previous knowledge of the Orient Focus, and while they add no strictly new traits, they strengthen the data from other known sites of these cremation burials.

"There was found a large main pit, approximately 18 by 30 feet, with a maximum depth of eight feet six inches below the surface of the ground. On the pit bottom were several bulk deposits of "red paint," cremation fireplaces containing fragments of calcined human bone, cache deposits of artifacts and decomposed pyrites. Several dozen soapstone vessels were found in the pit, all "killed," two with a hole through the base and all the others broken up and the various sherds distributed throughout the lower portion of the pit. Some of the steatite was in a state of almost total disintegration.

"The majority of the arrowpoints are of the fish-tail type and the material is white quartz, flint, slate and argillite and there is variance from this type to corner-notched with straight base. Large blades up to five inches in length had been broken into several sections. Included among the objects found are grooved axes, grooved and ungrooved adzes, very crude celts, drills, gorgets and red and black pigment stones. One slate gorget of unusual interest, six inches in length with three perforations, is ground down to a dull point at one end and resembles a spearhead. Six sherds of clay pottery were found associated with the other objects in the pit. One is a rim piece and indicates a straight-sided pot with a rough cord impression extending up over the rim and one inch down on the inside. It is of hard grit-tempered material and is ornamented with a knob about one inch below the rim. This knob is disfigured in the broken edge and its character cannot be determined." (*W. A. R.*)

SOUTHEASTERN AREA

A WPA-University of Texas archaeological project, supervised by Perry Newell, is continuing the excavation of a mound and associated village site near Alto, Cherokee County, in central East Texas. Outlines of circular houses occur in the village area and continue beneath the adjacent mound. In the top of the primary mound two closely overlapping house outlines with elevated fireplaces have been exposed. Secondary mounds enveloped this primary mound. The pottery continues to be the same tan or brown ware with incised and punctate decoration. More sherds with flat-topped rims have been found, some with decoration on this flattened lip. This feature of the pottery may represent some connection with the Coles Creek horizon of Louisiana.

The WPA crew directed by William A. Duffen has been transferred from the Dallas area to the Gulf Coast near Corpus Christi. A small shell mound on the beach of Copano Bay has been excavated. Shell, bone and antler artifacts predominate, apparently due to the scarcity of stone. Hammers, drills, celts and gouges of conch shell are especially characteristic. Manos are present, and one tubular pipe with bone stem was found. Five burials, showing considerable variety in body placement, have been removed. Affiliation with the previously excavated Morhiss site near Victoria is indicated. (*T. N. Campbell*)

A project to provide for archaeological excavation in the area to be flooded in that portion of the Kentucky Dam Basin of the Tennessee Valley Authority that is located in the State of Kentucky was officially begun on October 1, 1940. The Tennessee Valley Authority, The National Park Service and the Civilian Conservation Corps are cooperating to make the project possible. The project personnel consists of Mr. Charles G. Wilder, Project Superintendent, Mr. Harold F. Dahms, Senior Foreman, Mr. James R. Foster, Senior Foreman, Mr. Carl F. Miller, Foreman, Mr. Glenn E. Martin, Junior Foreman,

and Mr. Joseph F. Spears, Junior Foreman. The excavations are a continuation of an organized archaeological program that began in 1934 and will be completed in 1945 with the flooding of the Kentucky Dam Basin. A large middle Mississippian Village Site located on the banks of Jonathan Creek is being excavated at the present time. (*J. R. Foster*)

Ocmulgee National Monument completed the rotunda of the Museum and installed an exhibit there. The laboratory moved into permanent quarters in the Museum basement. During the summer and winter Ocmulgee cooperated in processing and storing excavated materials from the Columbia University-National Park Service Survey of the Northwest Florida Coast, and from the WPA-National Park Service Survey of Natchez Trace Parkway in Mississippi. The material excavated by the University of Georgia-WPA State-wide Survey has been temporarily stored at Ocmulgee. Facilities are now available to enable the Monument to cooperate in a similar manner with any organization doing survey work in the southeastern area.

Work at Lamar led to the discovery of an additional palisade line slightly smaller in area and earlier than the line previously investigated. Both lines appear to belong to the Lamar Aspect. Outside the palisade an encircling ditch was found which seems to have connected with the adjacent swamps. The large pits, presumed to be barrow pits, are now tentatively regarded as intentional ponds because the excavated earth was apparently not used in mound construction. The stratigraphic series at Lamar now contains at the base Swift Creek Complicated Stamp, plus a minority of fiber-tempered sherds. This is followed by Macon Plateau and finally the Lamar occupation.

Charles H. Fairbanks was appointed Junior Archaeologist on December 13, 1940. (*W. W. Luckett*)

One thousand thirty-one burials recovered from shell mound Lu° 25, in the Pickwick Basin in northwestern Alabama may be divided into two groups. One, including 400 burials, has been termed "Shell Mound," a term applied to undeformed longheaded people with whose burials there are associated atlatl weights and hooks, and large-stemmed points, and whose cultural remains are found inclusive in the shell middens. The second includes 300, termed "Central Koger Island," that are roundheaded with extensive cranial deformation. The remains of this group are intrusive superficial burials associated with a Middle Mississippi type of culture based on agriculture, shell-tempered pottery, small triangular points, and large truncated mounds. Three hundred burials are yet to be completely processed.

Skeletal remains recovered from Copena horizons for the first time show certain resemblances to the Central Koger Island type.

A comprehensive report which is being prepared by Marshall T. Newman and Charles E. Snow will be included in the Guntersville Basin report. (*Charles E. Snow*)

Large scale excavations in Tennessee areas to be inundated by the TVA dams under construction have now entered the eighth consecutive year. The University of Tennessee and the TVA, with the extremely generous assistance afforded by WPA, are undertaking to preserve the record of aboriginal occupation in the areas, and to reconstruct the history of Indian cultures in Tennessee.

The present excavations are being carried on in the Watts Bar Dam and Kentucky Dam reservoir areas. As a result of the laboratory studies of the completed work in the

Chickamauga Basin, and the studies of currently excavated material, the field work is now concentrating on particular problems of Tennessee prehistory which require further elucidation.

There are four crews in the Watts Bar reservoir area working under the general supervision of Charles Nash. C. H. Burroughs and Alden Hayes are investigating principally sites of two Woodland horizons, comprising both village sites and burial mounds. The earliest Woodland manifestation is the so-called Round Grave culture described by Harrington which is distributed throughout East Tennessee and parts of Virginia. The later Woodland manifestation is characterized by burial mounds and certain other traits, such as long marine conch columella beads, and marine conch pendants which indicate contacts with the Gulf Coast. The pottery is tempered with either limestone or other crushed rock, the limestone being exclusively used in the later manifestation. Surface finish styles differ, the earlier pottery being characterized by the predominance of "basketry" or cord wrapped dowel impressions, while the later pottery shows cord wrapped paddle impressions or plain surfaces. The latter part of the early Woodland occupation shows contact with the Georgia area in ceramics, with respect to complicated stamped pottery, both locally manufactured and of Georgia provenience of the Swift Creek period. Physical types of the early Woodland are dolichocranial, undeformed, broad faced, elongated orbits, medium nose with a marked depression of nasion, and well developed supraorbitals. Skeletal material from the burial mounds is in poor condition and the procurement of better examples is one of our present objectives. Evidence points to a dolichocranial, undeformed type, similar to the early Woodland.

John Alden is completing the excavation of a large domiciliary mound of the Mississippi culture pattern which corroborates the sequence of the Mississippi culture manifestations established at Hiwassee Island in the Chickamauga Basin, to wit: an early Mississippi focus which equates with Webb's "small log town house" complex of the Norris Basin, a later focus of the same aspect not indicated for the Norris Basin, followed by a focus similar to Webb's "large log town house" complex.

Wendell Walker has just completed a complex site showing stratification of the two Woodland manifestations, overlain by an extensive village site belonging to the protohistoric and historic time horizons of the Mississippi culture. This late manifestation equates with the large sites in the Hiwassee River valley which ethnohistorical research indicates may be attributed to the Yuchi occupation of East Tennessee. Both ethnohistorical studies and archaeological data from field and laboratory indicate the extreme lateness of the appearance of the Cherokee on the scene of Tennessee prehistory.

Physical types of the early Mississippi manifestations are unknown, since sites showing relatively pure early complexes never have any burials. Most Mississippi burials belong to the later and protohistoric Mississippi manifestations. Most of these, as well as the burials with historic trade material, show posterior deformation of the skull. The later Mississippi group associated with the most spectacular East Tennessee cultures which possessed the engraved shell gorgets, copper work, pearl beads, shell beads, and conch shell vessels, had a large face, both broad and long with a large prominent nose and flaring gonions. The protohistoric group had a triangular shaped face with marked bizygomatic breadth which is emphasized by the relative narrowness of the mandible. Posterior cranial deformity is greater in this group and tends to occur in the lambdoidal region in contrast to the occipital deformity of the large faced group. Frontal flattening is also frequent in the protohistoric and historic burials. Alveolar prognathism is more prevalent in this group. The large faced Mississippi group tends to have more elongated

orbits than the protohistoric group. The physical data, which is incomplete, points to the amalgamation of several physical groups, and is corroborated by the continuity of occupation on some sites over long time periods.

Two crews are excavating in the Kentucky reservoir area. George Lidberg has recently completed a site in which a pre-pottery, atlatl using manifestation, associated with a large shell mound, is overlain by an early pottery making component which resembles the Baumer material from southern Illinois. The surface manifestation of the site was that of a late Woodland culture whose pottery resembles the clay-grit ware of the Wheeler Basin. Douglas Osborne has completed several sites showing the same manifestations and stratigraphy. Some of the pre-pottery sites lack the shell mound feature, but otherwise belong to the same complex which closely resembles the Indian Knoll site in Kentucky reported by Moore, and other sites in Kentucky reported by Webb.

The physical type associated with the pre-pottery horizon is undeformed dolichocranial, has a short, relatively narrow face, a mesorrhine to leptorrhine nose, round orbits, and weakly developed supraorbitals. Frequent instances of complete and partial metopism occur in this group, a fact which suggests inbreeding. The physical type seems to have a more slender and less sturdy skeletal framework than the later peoples and presents a non-Mongoloid appearance which suggests Hooton's Palae-American group. The pottery making peoples, on the other hand, do not differ greatly from the description of the early Woodland type in East Tennessee.

Excavations during the past year in the Kentucky Basin have shown three separate Mississippi manifestations which seem to fall into three time horizons. The earliest is essentially a Middle Mississippi manifestation having grit tempered pottery with typical Middle Mississippi shapes and decorations, and associated with large domiciliary mounds. The next is a Mississippi manifestation having shell tempered pottery but lacking in the domiciliary mound complex. The incising and engraving techniques in pottery decoration associate with this complex. The third Mississippi manifestation is characterized by domiciliary mound and shell tempered pottery similar to the second manifestation.

At present, a series of preliminary reports on recently excavated sites is under preparation by the various field and laboratory staff members. The University of Tennessee expects to distribute these this spring in mimeographed form as the first of a series of such papers which are intended to acquaint the profession with current work previous to the publication of the final reports. Most of the efforts during the past years have been dedicated to the task of salvaging Tennessee archaeological remains and organizing the records for future research, since *90% of the aboriginal sites* in the State have been, or will be, inundated by TVA dams completed, under construction, or contemplated. (*T. M. N. Lewis*)

PLAINS AREA

The North Dakota Historical Society, working with WPA assistance, under Mr. Thad Hecker has been pursuing various projects for the past nine months. A survey of the Missouri Valley for the purpose of locating additional and unrecorded village sites was carried on during the early summer and fall.

Last year semi-rectangular, rather than round houses were discovered on at least one of the older Mandan sites. Mr. Hecker discovered this year that there were other sites on the east side of the Missouri which also appeared to show rectangular houses; these will be investigated by excavation during the coming summer. The survey covered

territory on either side of the River from the South Dakota line to about the former location of Fort Stevenson, a distance of nearly 200 miles by river. A very considerable number of new sites were located, and wherever possible, small collections of potsherds were made. These were all placed in the Society's laboratory where they have been catalogued, classified, and studied during the past three months. With increased knowledge of the area there arise more problems as to ages of sites and the length of time during which the area has been occupied. It was previously assumed that the several villages of highest culture around the mouth of the Heart River on both sides of the Missouri were occupied at the end of the pre-contact period and marked the northern limit of penetration. It was assumed that village sites farther north were built at a comparatively late period by survivors from the destroyed villages around Bismarck. Further study of pottery makes it very evident that to the north there are as many villages with earlier styles of pottery as there are between Bismarck and the South Dakota state line. Further work will have to be done before any definite conclusions can be reached.

The pottery studies have also resulted in the development of a catalog of Mandan pottery traits based on shape, temper, hardness, color and design. Design seems to be the most valuable trait, since similar designs with varying qualities of excellence in execution run through from the oldest to the latest sites. So far, no good differentiation between Mandan and Hidatsa archaeological material has been evolved.

Arikara material seems to be quite easily distinguished; several Arikara sites have been located toward the southern portion of the area. In that territory there is also the problem of a few Cheyenne sites. So far no definitely Cheyenne collection has been made from that region, though we have the excellent one from the Sheyenne River made by Dr. Strong and his party. It appears, however, that the Cheyenne must have been particularly quick to change and adapt design to varying conditions, from the fact that sites on the Sheyenne River give evidence of the early development of the technique of using trade beads as a portion of the decoration on some of their pottery.

Apparently nearly all of the sites as far south as the Cannonball River, on the west side of the Missouri, are Mandan. Beyond that there are only a few Mandan and a number of Arikara. On the east side, however, nearly all of the sites seem to be Mandan as far south as the Rygh site, which has been reported upon by Dr. Strong. (*George H. Will*)

The Museum of the University of South Dakota has, with WPA assistance, continued its research in the field of archaeology this past season. From July 15 to November 3, a party under the supervision of Elmer E. Meleen excavated in the Oahe Village, a large site located near the Missouri River in Hughes County.

Surface configurations at this site denote two distinct periods of occupation. The larger and older village contains over 200 house sites in addition to several refuse middens and numerous smaller depressions representing cache pits. The later occupation was represented by a small fortified village situated in the approximate center of the larger site. This smaller village, consisting of a ceremonial lodge and twenty-two dwellings, was completely enclosed by a trench that was roughly rectangular in outline.

Although there appeared to be a possibility of finding superimposed cultural strata of two unrelated groups, excavation of six houses inside of the smaller fortified village and three in the older village failed to show any marked cultural difference between the two occupations. From preliminary studies of the material, both villages appear to have been occupied by the Arikaras. House types of both periods were semi-subterranean earthen lodges, circular in outline with four central posts. Slight variations in the method

of house construction appeared in the smaller village. In this site the outer row of posts were often lacking, except for those outlining the entrance. The houses were also noticeably smaller than those of the larger village.

Central fire pits were common to all the houses. Cache pits ranging in size from pocket caches to extremely large ones occurred inside as well as outside the houses. The larger ones were most commonly found outside however. Twenty-four of these large cache pits outside of the houses including both bell-shaped and straightsided pits were excavated, but they were, for the most part, sterile, except for a few that had been filled with refuse. Some of them measured 6–8 feet in diameter at the bottom, and were 5–6 feet deep.

The occurrence of trade material in the form of iron, copper, and glass beads places the occupation of both of these sites in protohistoric time, but a marked contrast in the depth of the house sites in the two villages would indicate a lapse of several years between the two occupations.

Twenty-one shallow graves were opened in which 36 individuals were found. These burials were invariably found in a flexed position, some on the side, a few on the back. A few had been disturbed by intruded burials. Grave goods were rare.

The last few days of the field season were spent in a preliminary investigation of another site approximately one mile north of Oahe Village, where surface conditions indicated the possibility of rectangular houses. In this site, one house was outlined which measured 65 by 36 feet. Rows of charred posts still remain along the two longer walls of this house to clearly mark the original shape of the dwelling. Evidence here indicates a culture of prehistoric dating, but as yet too little is known to attempt classification. Additional work on this latter site is scheduled for the coming field season. (*W. H. Over—Elmer E. Meleen*)

SOUTHWESTERN AREA

Through a regrettable error the report of the work carried on by Donald J. Lehmer that appeared in the last issue of AMERICAN ANTIQUITY (p. 281) stated that the Arizona State Museum and the University of New Mexico were co-sponsors of the project. It was the Museum of New Mexico, and not the University that joined with the Arizona State Museum in backing this work. The Editor humbly makes apology to both institutions for the mistake on his part.

Threatening Rock at Chaco Canyon National Monument fell on Wednesday afternoon, January 22, having been weakened by unusually wet weather. Only small portions of the base remain in situ. The 30,000-ton slab of sandstone sheared near the bottom and collapsed into large and small pieces. A portion of Pueblo Bonito was covered and shattered by falling rock, but damage was less than might have been expected, as no walls not actually struck by rocks collapsed. The damaged portion, about a hundred feet of the back wall and 21 adjacent rooms toward the plaza as far as Kiva G, was between the wide east wing and the highest part of the ruin.

Very little archaeological work other than continuation of previously mentioned projects has been going on in the Southwest recently.

A WPA-University of Texas archaeological project, under the supervision of J. Charles Kelley, has completed work at a prehistoric Central Texas midden site located in the Marshall Ford Basin of the Colorado River near Austin, T. N. Campbell reports.

By varying the usual method of excavation in such sites and by proceeding with extreme care, it has been possible to throw additional light upon the nature of the "burnt-rock" middens of Central Texas. The typical "burnt-rock" midden is made up of large numbers of superimposed and intersecting hearths. Each hearth appears to have been placed in a shallow pit dug into preceding hearths. The midden therefore represents continued or intermittent occupation at a favorable spot. It is now being noted that the earlier, pre-pottery middens of the Colorado River valley, when present in the alluvial flats, tend to be incorporated in the upper layers of the second of a series of three stream terraces.

Archaeological excavations in all parts of Texas during the past few years are summarized in the December 1940 issue of the "Texas Archaeological News: An Occasional Report issued by the Council of Texas Archaeologists," number 2, "Recent Field Work in Texas."

Excavations and other researches in all sections of Texas, carried on by Sull Ross College, El Paso Museum, Southern Methodist University, Texas Technological College, Dallas Archaeological Society, Central Texas Archaeological Society, and the University of Texas, are briefly reported on by J. Charles Kelley, W. S. Strain, Claude Albritton, Jr., Joe Ben Wheat, R. K. Harris, Frank Watt, T. N. Campbell, A. T. Jackson, W. A. Duffen and Perry Newell. Almost without exception, the projects reported on in the various areas are of considerable interest and importance; and, fortunately, the reports are fairly full and quite clear, factual and informative, with some excellent discussions and descriptions and occasionally with significant interpretative and comparative statements. (*E. K. R.*)

Mr. Gladwin reports that the energies of Gila Pueblo have been directed toward the correlation of archaeology and tree-ring dates, with an eye to extending the tree-ring chronology in time and space. The survey of northern Mexico which was carried on by Nusbaum last summer will be continued in the coming summer. Sayles has been excavating and preparing his report on the work in Cochise County, Arizona, ranging from the pre-pottery Cochise culture through the later developments now recognized as the true Mogollon culture.

Prof. L. L. Leh writes that several weeks were spent last summer at the Monument Ruins (formerly known as the Wilson Ruins), 18 miles southwest of Dove Creek, Colorado. A small crew was employed, excavating a Pueblo II unit house in the same village worked in by T. M. Pruden years ago. A piece of charcoal, dating at 1146 A.D., was recovered from one of the rooms, thus contributing a first definite date to this important site. He expects to continue work on these ruins next summer, and is planning a series of permanent improvements, to facilitate work there in the future. Mr. Charles R. Scoggin has been at work since October, in Western Colorado, where he worked for six months last year in a Basketmaker Cave.

J. O. Brew reports that two papers in the Awatovi series have gone to press, both by John T. Hack, "The Changing Environment of the Hopi Indians of Arizona" and "Prehistoric Coal Mining in the Jeddito Valley, Arizona." These are the results of his three seasons with the Awatovi expedition, including a study of the physiographic factors behind the specialized farming methods of the Hopi and a detailed consideration of the geological history of certain Arizona valleys and the relationship of periodic cutting and filling of arroyos to Pueblo farming.

Hibben writes that the Sandia report is done and the manuscript on the Largo Canyon work of the past summer is well along. The past fall was spent chasing down some new caves in the region, with the result that a good one has turned up near Isleta with bison, camel, horse, etc., and some flint work. Plans are forming for a summer trip to Alaska to look for early man there.

Walter W. Taylor, working out of Cuatro Cienegas, Coahuila, Mexico, with a small expedition party has reported doing some work in a cave site, with plans to branch out when more men are trained. The material found in the first site was good and quite plentiful, although not much comparative material was found immediately. (*J. C. McG.*)

PACIFIC COAST AREA

Arthur Woodward, Director of history and anthropology, Los Angeles County Museum, reports that in November and December, 1940, the Museum sent a combined biological and archaeological expedition to San Nicolas Island for the purpose of continuing reconnaissance work on that island. Tests were made at a small site at Dutch Harbor in April 1940, as reported in the last issue of AMERICAN ANTIQUITY.

In the later expedition, the excavation of that site was completed, and a number of fine specimens were obtained. These comprised eel grass textiles in twined weave, including a cape, mats, bags, skirts, etc. The cordage, with one or two exceptions, was two-ply. Shell fish hooks in all stages of construction were also obtained and appeared to be of a different type from those on the mainland.

An interesting sidelight of the expedition was confirmation of the location of the site of the hut occupied by Juana Maria, the last known survivor of the San Nicoleños. She was removed from the island in 1853 by George Nidever. Nidever's narrative was checked against the landmarks and the location of the hut site was ascertained with certainty. It was marked by 19 pieces of weathered whale bone, scapulae, and ribs. The hut was on the northernmost spit of land, on the highest point, as described by Nidever.

Field work on all of the islands of the Channel group will continue for another two or three years.

During the autumn the San Diego Museum devoted several weeks to an archaeological survey in western Arizona under the supervision of Malcolm J. Rogers. The main effort was directed toward mapping the network of numerous Yuman trails and trade routes leading from the Colorado River Valley into Arizona, recording the attendant trail shrines and the giant gravel pictographs of the region. Particular attention was paid also to the distribution of sherd types in preparation for a forthcoming publication on Yuman and intrusive archaeological pottery.

During the Christmas-New Year holidays, E. W. Gifford and W. E. Schenck, accompanied by their wives, visited the Guaymas, Sonora, region. A number of shell-mounds were seen in that region, the one of greatest depth having a vertical face of eight feet. The mounds varied somewhat as to artifacts found on the surface. Chipped stone (some of which was obsidian) and potsherds were found on certain of the mounds. Sherds lacked painted or incised design; some were thin like modern Seri ware. One mound yielded no potsherds whatsoever and possibly represents a pre-pottery culture. Metates and manos, but no mortars and pestles, were observed. No stone or shell artifacts whatsoever were found. The mounds are located both on the rocky portions of the coast and on the low-lying, marshy, *estero* regions around Empalme.

Archaeological excavations have been made in the Columbia Basin under sponsorship of the Eastern Washington State Historical Society, the Department of Anthropology of the University of Washington, Washington State College, and the National Youth Administration. The immediate aim was a survey of the area to be flooded by the construction of Grand Coulee Dam, coupled with intensive excavation at promising sites. Work was begun in summer, 1939, under Mr. Alexander Krieger, University of Oregon, and was continued in autumn under Dr. Phillip Drucker, University of California. Excavations near Hellgate revealed at least two, and possibly three, levels of occupancy. During the winter 1939–40 the center of operations was moved to Gifford, and the leadership taken over by Mr. Joseph Jablow, Columbia University. Digging was handicapped by bad weather, but a reconnaissance was made of an extensive area on both sides of the river. In the spring Dr. Alfred E. Hudson, University of Washington, became director of the project with Dr. Donald Collier of Washington State College as associate director. The camp was moved to Marcus, and sites were excavated between Kettle Falls and the Canadian boundary, until the end of September, 1940. In general artifacts are similar to those of historic cultures of the Columbia Basin. Perhaps careful study will reveal differences in local types. There is evidence of extensive trade relationships with the Pacific Coast. Artifacts and skeletal material are now being studied and will eventually be deposited with the Spokane Museum. A report of the year's work is being prepared by Dr. Collier and Dr. Hudson. It may be possible to resume digging in other parts of Washington in the summer of 1941. (*E. W. G.*)

BOOK REVIEWS

An Introduction to the Archaeology of Central California. JEREMIAH B. LILLARD, R. F. HEIZER, and FRANKLIN FENENGA. (Sacramento Junior College Dept. of Anthropology, Bulletin 2, pp. 93, figs. 20 and map, pls. 31. Sacremento, California, 1939.)

"Archaeological Horizons in Central California." ROBERT F. HEIZER and FRANKLIN FENENGA. (*American Anthropologist*, Vol. 41, pp. 378–399, 1939.)

During the past year two important papers have appeared on central California archaeology, which represent the results not of a season or two of digging, but of a long range program of research carried on by two coöperating institutions, Sacramento Junior College and the University of California. Since one of these papers (Heizer and Fenenga) is a summary of results, and the other (Lillard, Heizer, and Fenenga) a presentation of primary data, with some additional interpretations, the two should be reviewed together.

While archaeological material from Central California had been studied previously,[1] the work described in these papers is the first aimed at systematic investigation of the region. This, alone, makes the reports a significant contribution from the standpoint of methodology. Central California is a bitter proving-ground for archaeology. A home of folk of simple cultures, its sites, though numerous and large, are poor in artifactual materials. What few artifacts occur are chiefly grave furniture, so that the investigator is perpetually confronted by the possibility of selectivity in trying to distinguish complexes and horizons. In the lack of pottery (except for the rather amorphous "baked-clay objects"), he must seek cultural similarity or divergence in minute details of shell bead and ornament types. Yet with these handicaps, the program of careful, intensive research has borne rich fruit. It has resulted in the differentiation of three cultural horizons in the region, and their placing, relative to each other. It has brought out a number of processual factors in the culture change, particularly at the upper end of the culture column, and set the stage for reinterpretations of Central California ethnographic data. Even to one who has not immediate interest in the rather unspectacular materials from the region, the work cannot fail to be of interest as a demonstration of the value of a planned intensive program.

This is not the place to recount the conclusions developed in the reports, other than in a most summary fashion. On the basis of a succession of empirically established burial complexes, and their stratigraphic relationships, Central California appears not as a stagnant changeless backwater of culture but as the scene of dynamic change. Three successive horizons have been sorted

[1] Schenck, W. E., and E. J. Dawson. "Archaeology of the Northern San Joaquin Valley." *University of California, Publications in American Archaeology and Ethnology*, Vol. 25, pp. 289–415, 1929.

out: an Early, "a developed culture which has already achieved a Central Californian tenor" (Lillard, Heizer and Fenenga, p. 75); a Transitional, stratigraphically and, in general, developmentally intermediate between Early and Late, although with "numerous elements not found in either the preceding or succeeding period" (*ibid.*, p. 79); and a Late culture which has been divided into three phases, a prehistoric, protohistoric, and historic. The authors candidly point out the lacunae in their culture column as problems at which further research must be aimed. Their Early is too stabilized and "Californian," with established trade relations with both the seaboard and the Sierras to the east, not to have had an antecessor which is yet to be found. It is worth remarking that the question of antiquity of the Early culture has been sanely handled. Mineralization of the skeletal material, evidence of physiographic change in relation to site locations, as well as relative position with regard to the other horizons, make it obvious that the Early culture must be quite old, yet no extreme claims are made for it. While defending their interpretation of the Transitional culture as at once a transitional phase and one possessed of many unique features, the authors suggest that further investigations may make its status more intelligible by differentiating a succession of phases within it. And the problems of the Late culture—the complex factors involved in diffusion of elements and cultural efflorescences resulting from populational shifts due to Spanish pressure—are only pointed out. It is to be hoped that this aspect of Central Californian native history will be developed further. Not only are data from the interval between the prehistoric and the much later ethnographic levels absolutely indispensable for an evaluation and understanding of ethnographic data, but dateable archaeological material from cultures in rapid transition, as were those of Central California, is probably the richest and most reliable that can be found for the study of culture process.

In discussing the present papers from the viewpoint of method, the matter of presentation obtrudes itself, particularly in connection with the descriptive account (Lillard, Heizer and Fenenga). In times when publication costs delay or even prohibit the appearance of worthwhile reports, succinctness is a desideratum. Compact presentation without loss of clarity has been achieved by the writers in the sections on typology by free use of line drawings. A page of sketches of artifact types can convey more than several pages of text, and are easier to use for comparative purposes. Similarly the tightly written site descriptions and the concise tabulations merit commendation. It seems to the reviewer, however, that to have expanded the typological section somewhat would have made that part of the report more useable. There is, for example, no charmstone typology given (except in the plates at the end of the volume, to which there are no text references). Another worthwhile expansion might have been that of adding a page or so on field methods. A sample artifact-slip, and the like would have been of interest in this day of technique-conscious archaeology. The reviewer happens to be familar with the rigid precision with which the digging was done; workers in other regions might be interested in comparing notes.

A few minor criticisms suggest themselves, principally in connection with details of typology. The nomenclature given mortar types (pp. 8–9) appears slightly inconsistent with form relationships (unless other criteria have been used in the classification); that is, Type B1, with its straight sides, appears more like an A type than it does other B types which are made of large stream boulders with unshaped sides. Similarly in pestle types (pp. 10–11), Types B1 to B3 appear to differ considerably from Types B4 and B5, and B6 to B10. While this may appear a small matter, the fact remains that a typology in which the nomenclature conforms logically to the criteria of classification is easier for others to use and much more amenable to modification and expansion. A more logical nomenclature of pestles might be, for example: (A) long cylindrical forms, (with subdivisions); (B) long cylindrical forms with expanded ends; (B1) proximally expanded, (with subdivisions, *e.g.*, B1a, B1b); (B2) distally expanded, etc.

There is another point of type-nomenclature which the reviewer feels should be objected to even more vigorously. The chipped point typology (p. 13) is, as stated in the report, modified after Strong.[2] Strong's point classification is a carefully worked out one, and capable of being modified for any material. The modifications, however, should be made clear. For instance, Type NAb3 in the California report is *not* the same as Strong's NAb3, a fact which might cause some confusion in future comparisons. The authors have not sinned often in this regard; most of their new point types have new designations in harmony with the parent scheme, but their occasional lapses should be noted.

There is a final aspect of the Lillard, Heizer and Fenenga report that must be criticized. The paper has been put out in offset printing (photo-lithography) probably for reasons of economy. There can be no objection to this mode of publication. It would be out of all reason, and a needless waste, to have archaeological reports done by fine arts presses. Certainly the *General Series in Anthropology* and the *University of California Anthropological Records* demonstrate the practicability of offset printing, and the possibility of turning out clear, legible and error-free monographs by this method. Since no corrections can be made in proof, save by re-doing an entire page, however, it is mandatory that the work be done by competent people, and very carefully supervised. It is here that the present report is at its worst. The pages are bespattered with the most glaring sort of typographical errors, which makes for difficult reading and gives a distinctly unpleasant impression. To have to wade through a report with the monograph in one hand and a long errata sheet in the other is annoying. Even worse is the danger that typological designations, tabulations, and the like, may be butchered by a poor job of typing. In the present report the olivella bead types (p. 12) are out of order (compare 2b, p. 12, with Plate 11, c, and Explanation of Plates, Pl. 11, p. 89). To take another random example, the tabulation of Site

[2] Strong, W. D. *An Introduction to Nebraska Archaeology*. Smithsonian Institution, Miscellaneous Collections, Vol. 93, No. 10, 1935, pp. 88–89.

142 material (p. 37) should obviously read, in the column "Early Burials," *43* instead of 51, after the caption "Extended ventrally," *45* in the same column after "Orientation west," and "Total number of burials." This whole unfortunate circumstance must be laid at the door of the editor, however, rather than that of the authors. It is to be regretted that incompetent presswork and editing should have been allowed to mar a piece of work which in its breadth of conception and in its methodology, both in the field and laboratory, was so admirably carried out.

PHILIP DRUCKER
University of California

Archaeology of Santa Marta, Colombia. The Tairona Culture; Part II, Section 2, Objects of Pottery. J. ALDEN MASON, with Appendix by DONALD HORTON. (Field Museum of Natural History Anthropological Series, Vol. XX, No. 3, pp. 275–418, pls. CLXIV–CCXLVIII, Chicago, 1939.)

The third volume of Mason's Santa Marta series, dealing with the pottery, has been eagerly awaited by workers in northern South America, of whom, unfortunately, there are all too few. Its purely descriptive nature is in accordance with the stated plan for a fourth volume of comparative material and conclusions.

The material covered comes from a number of sites in the Santa Marta region, most of it excavated or purchased by Mason himself, but collections of any importance in this country and Europe have been included, thus providing a complete survey of virtually all known ceramic material from this part of Colombia.

Santa Marta pottery is relatively homogeneous throughout the area, as far as can be ascertained at present; it is the product of a single horizon of relatively short duration and apparently of late date. It is all unpainted ware with the exception of one sherd and vessels from a single grave at one site. Decoration consists of various combinations of incision, appliqué work and modelling. Classification on the basis of surface finish throws nearly all the ware into coarse red and fine black types. Vessels are carefully described in ware and shape groups, followed by a description of other objects of which ocarinas and whistles are the most frequent and characteristic. Line cuts and numerous plates conform to the high illustrative standard of previous sections of the series.

Mason's megascopic classification was corroborated by the technical analysis made under the direction of Donald Horton and contained in an appendix. In this admirable presentation of technological material, the first part deals with "a non-technical description for the archaeologist," the second with "a technical description for the specialist," a handy and logical division.

Taken together, text, illustrations and appendix represent the most thoroughly complete descriptive treatment of excavated ceramic material from anywhere in South America. Although the text could undoubtedly have been

condensed, as Thompson suggested in his review of Section 1 (AMERICAN ANTIQUITY, Vol. III, No. 3, p. 293), the data are there, which is the important thing after all. Anyone who does archaeological work in northern South America and lower Central America will find this work indispensable.

ALFRED KIDDER, II
Harvard University

Prehistory in Haiti; A Study in Method. IRVING ROUSE. (Yale University Publications in Anthropology, No. 21, pp. 202, pls. 5, charts 7, tables 27. New Haven, 1939.)

As stated in the title, this book attempts the double purpose of discussing archaeological remains and, at the same time, demonstrating a new technique of presentation, "an experiment in methodology." The author writes under the added handicap of necessarily referring to factual reports still in manuscript, which it is hoped will be published shortly.

The archaeological material on which the book is based comes from eleven hitherto unknown sites and was excavated by the author and Dr. F. G. Rainey in the vicinity of Ft. Liberté on the north coast of Haiti. It may briefly be described as pottery of distinctly West Indian forms with, however, obvious local characteristics and, also, various implements of stone. Among the latter are types which have not previously been published, including many chipped blades.

As each site contained relatively homogeneous phases of culture, to place them in chronological order it was necessary to discuss their contents in detail. Two main periods emerge. The older is featured by camp sites, no evidence of pottery or agriculture, double-bitted axes, little work in bone or shell, but a large quantity of chipped stone artifacts. The second period, subdivided into two parts, is marked by village sites, pottery, agriculture, petaloid celts, many artifacts of bone and shell, and a few chipped implements. All eleven sites are fitted into a time scale arbitrarily fixed at six periods. Finally, the Ft. Liberté set-up is compared and contrasted with remains from other islands in the West Indies and important chronological correlations are established, notably with Puerto Rico.

The average reader will find great difficulty in extracting this information because it is concealed behind a smoke-screen of systematization. This the reviewer regrets, as he happens to be interested primarily in the factual archaeology of the West Indies. Books, we believe, are published to be read by as many people as possible and any technique of presentation which deliberately complicates the facts is to be deplored. The mental maneuvers of an author in studying archaeological material obviously are his own concern, but it seems unnecessary to make the reader face the same gamut unless it is needful for adequate exposition.

On the other hand, *Prehistory in Haiti* may be regarded primarily not as a

direct contribution to knowledge but rather as a study in methodological technique, "auxiliary to McKern's classificatory scheme," with the archaeology of Haiti serving as a medium for demonstration. On this basis, it exhibits both the weakness and strength of the several rigid frameworks into which various attempts are currently being made to fit New World archaeology.

As was brought out in discussion at the 1939 Chicago meeting, the obvious utility of narrow classification is that it creates uniformity and facilitates comparisons. This doubtless is admirable alike for the student who lacks initiative and for the teacher, hard-pressed to keep up with many subjects, who finds it simpler to dish it out if the material has been reduced to uniformity.

On the other hand, archaeological remains are human products, censored by destructive contact with the soil, and they therefore vary widely in quality and quantity. Furthermore, archaeologists are individuals differing in character, training, ability and special interests. How then can there be any one archaeological method which outranks all others? Yet this is the claim for the often unnecessary complications of each method that is put forward.

It has been frequently stated that a growth in terminology is a healthy sign of scientific advance. Probably this is true. Yet one may justly criticise the choice of terminology in this and other studies of method because words in common use have been robbed of their normal meanings. This could be avoided by employing less common terms comparable to "brachycephalic" or "moiety" instead of "aspect," "pattern," "mode," "type," etc., which should be available to anthropologists as well as other writers in their generally accepted significance as set forth in standard dictionaries.[1] New World archaeology, by its multiplicity of jargon, now threatens not only to exclude the intelligent layman (on whom it depends for financial support) but to divide the professional students into regional secret societies, boasting exclusive and mutually unintelligible dialects. Any step in this direction seems unnecessary and is to be profoundly regretted.

In fairness to the author, we must add that he courteously has shown the reviewer the great West Indian collection which is housed in New Haven, and in discussion has demonstrated his wide knowledge and understanding of the problems it involves. *Prehistory in Haiti* reflects an unquestioned grasp of the subject, even if the atmosphere is cloudy, and it typifies the great advance in knowledge of Antillean archaeology since the pioneer days of Fewkes and De Booy.

S. K. Lothrop
Peabody Museum
Cambridge, Mass.

[1] On consulting Webster's Collegiate Dictionary, I find that the five terms in McKern's classificatory system already have twenty-four specific meanings and that two terms added by Rouse have fourteen. If the archaeological connotations are accepted, seven overworked words will have to do a job which calls for forty-five.

Prehistoric Culture Units and Their Relationships in Northern Arizona. HAROLD SELLERS COLTON. (Museum of Northern Arizona, Bulletin 17, pp. 76, fig. 14, tables 11. 1939.) $1.75.[1]

The present monograph is an important and comprehensive systematization of archaeological data in the Southwest, a field to which the Museum of Northern Arizona under Dr. Colton's able guidance, has made significant contributions. In view, however, of the widening use of "taxonomic" methods in archaeology, the main interest of this work is methodological.

The author first considers the two current taxonomic methods of classifying cultures: the Midwestern (McKern) method and the Gladwin method. Both of these use categories adapted from biology. Subdivisions of the first (pattern, phase, aspect, and component or focus) carry no implication of sequence or distribution, showing merely relationships established by percentage resemblances. Those of the latter (root, stem, branch, and phase) are avowedly developmental.

Dr. Colton employs Gladwin's developmental scheme but substitutes some of McKern's terms. His divisions are: root, stem (for which he finds little use), branch, focus, and component. Stems develop from roots and branches from stems, foci being mainly developmental points along branches. Cultures are classified, when possible, on the basis of all traits, though most traits pertaining to agriculture, those arising from local environments, and mutual absences are omitted (p. 15). Pottery, having complicated techniques, is given double weight. When only pottery is available, a ware is used to establish a branch, a type to establish a focus.

Applying this method to the Southwest, Dr. Colton divides the "indefinite Southwestern basic culture" (coiled pottery, maize farming, earth lodge before 1,000 A.D., coiled baskets, loom weaving) (p. 70) into four roots: Patayan (Gladwin's Yuman); Anasazi (Basketmaker-Pueblo) Mogollon (Gladwin's Caddoan); and Hohokam. Each root has 1 to 3 branches, each branch 2 to 8 foci.

It is apparent from the cultural relationships shown in this scheme that strict adherence to a method drawn from biology inevitably fails to take into account the distinctively cultural and unbiological fact of blends or crosses between essentially unlike types. We feel certain that biological taxonomy would be very different if an oak tree could, through association with garden plants, acquire geranium leaves and bear strawberries. The inherent inability of this method to take cognizance of cultural blends is not surmounted in its application to archaeological data; it is ignored. It is true that cultural streams often tend to be distinct, but they are never entirely unmixed and often approach a complete blend. A taxonomic scheme cannot indicate this fact without becoming mainly a list of exceptions. It must pigeon-hole. It does so on the basis of

[1] Another review of this report appeared in Vol. VI, No. 2, this series. Two reviews are published in order to present the views of opposing camps on this controversial question. (Ed.)

relationships solely in one direction, completely obscuring and thereby inadvertently somewhat falsifying other relationships. For example, the Cohonina branch is put in the Patayan root by the slim margin of 5%: 47% of its traits are shared by Patayan, 42% by Hohokam, 33% by Anasazi, and 31% by Mogollon. The Sinagua branch is Mogollon by an even slighter margin: it is 50% Mogollon, 47% Anasazi. Were percentage tables given for all classifications, the reader could ignore the formal classification and observe for himself the true relationships. In the present scheme, the percentage basis for other classifications is not given, so that one is left in doubt as to how strongly the various foci and branches are linked with subdivisions other than those in which they are placed.

Those of us who have ventured to question taxonomic methods in archaeology are suspected of having disorderly minds. Obviously, our objection is not to order but to the supposition that classification is synonymous with order. We do not see the advantage of simplification, even for the general student and layman, when the method employed inevitably distorts true cultural relationships. If the purpose is to represent the development, interaction, and blending of diverse cultural streams, surely one can find a method that does not require the wholly unsuitable categories of biology. We suggest a trial of the method developed by Kroeber and Driver for handling ethnographic data. Applied to archaeology, it would be sounder statistical procedure and would yield more reliable results. It has been tried only once on archaeological materials.[2]

Dr. Colton's classificatory scheme also departs from traditional usage in the Southwest in introducing an imposing number of new terms. For example, one formerly might speak of the Basketmaker, Derived Basketmaker, Developmental Pueblo, and Great Pueblo cultures of the Kayenta region. According to Dr. Colton's scheme, the Kayenta periods are, in sequence, the White Dog, Lino, Marsh Pass, Black Mesa, Klethla, and Tsegi foci of the Kayenta branch of the San Juan limb of the Anasazi root. Acceptance of this part of Dr. Colton's system would seem to depend on the willingness of archaeologists to learn a new vocabulary.

We have dealt disproportionately with the methodological basis of Dr. Colton's monograph because of its theoretical importance. As a factual summary, the work is of outstanding value. One must be grateful to Dr. Colton for his excellent resumé of the content and distribution in time and space of most Southwestern archaeological cultures given in his list of foci. Moreover, although there is room for disagreement on many particular points, the very insufficiency of data and the uncertainty of many relationships highlight, as the author insists, many spots where research is greatly needed.

JULIAN H. STEWARD
Bureau of American Ethnology
Smithsonian Institution
Washington, D. C.

---

[2] Kroeber, A. L. AMERICAN ANTIQUITY, Vol. VI, pp. 29–44, 1940.

Population Changes in the Rio Grande Glaze-Paint Area. H. P. MERA. (Technical Series, Bulletin No. 9, Laboratory of Anthropology, Santa Fe, January, 1940.)

The Rio Grande glaze-paint area is a rectangular region on both sides of the Rio Grande river in New Mexico, extending from Santa Fe and Jemez in the north to a little south of Socorro. The major axis of the rectangle runs north and south; the Rio Grande is much closer to the western boundary of the region than to the eastern. The time covered by the use of glaze-paint for ceramic decoration in this region begins about the middle of the 14th century A.D. and ends with the final subjugation of the pueblos by the Spanish about 1700. The purpose of this study is "to gain a general idea of the movements and shifts in the population" of this region during this period. Data from "many hundreds of ruins . . . visited and studied" during a ten year archaeological survey conducted by the Laboratory of Anthropology, form the basis of the study.

Dr. Mera divides the glaze-paint area into eight sub-areas which he designates with names of linguistic families who lived in those regions in historic times: Keres, Jumano, Piro, etc. He divides the glaze-paint time period into five numbered sub-periods. These five sub-time periods are derived from significant events in the ceramic history of the region. The dates given are supported by dendrochronological data. Dr. Mera then proceeds to examine each sub-area in turn, for each time period, for evidences of population changes. The evidence is predominantly ceramic, although account is taken of size of ruins and their location with reference to defense.

The course of events varies somewhat from sub-area to sub-area. Dr. Mera illustrates his data for each area and time period with effective and illuminating maps. These analyses, sub-area by sub-area, are, in the reviewer's opinion, the most valuable part of the study. In the light of local variations, generalizations for the area as a whole are somewhat limited. Nevertheless, Dr. Mera does draw some general conclusions among which are: (1) during Period 1 (1350–1450), 74 out of 144 sites were abandoned; (2) Period 2 (1450–1490) was uneventful; (3) there was considerable fluctuation in Period 3 (1490–1515); and (4) in Periods 4 (1515–1650) and 5 (1650–1700) villages showed a tendency to break up into smaller social units.

The reader will find this study replete with tentative premises, assumptions, inferences, conjectures, guesses. This is not said by way of disparagement. It could not have been otherwise. The assumptions and conjectures are never confused, however, with the presentation of concrete, objective facts: the reader is always left free to make his own interpretations if he so desires. Dr. Mera leaves many questions open or unanswered. But his work is the beginning, not the conclusion, of the archaeological study of population changes in this region. The wonder is that he has been able to accomplish so much.

LESLIE A. WHITE
University of Michigan

Flint-Working Techniques of the American Indians: An Experimental Study. H. Holmes Ellis. (The Lithic Laboratory, Department of Archaeology, The Ohio State University, Columbus. April, 1940.)

This report, mimeographed through the courtesy of the Bureau of Business Research of The Ohio State University, presents what is without question the best and most comprehensive study of primitive methods of making chipped implements of flint which has thus far appeared. The bibliography is excellent. Furthermore the monograph is profusely illustrated by clear, diagrammatic line-cuts depicting each of the techniques described in the text. In some respects, however, the subject-matter dealt with appears to be somewhat broader

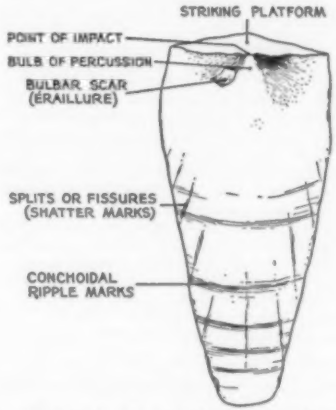


Fig. 37.—Diagram showing the characteristics of the bulbar surface of a flint flake produced by percussion.

than the announced scope of the work undertaken by the Lithic Laboratory for the Eastern United States "for the study of lithic materials pertinent to the economy of the American aborigines, and of methods and techniques employed in their utilization." This applies particularly to the very superficial account of the anvil technique (p. 18), which thus far has been demonstrated for only two industries: the Abbevillian and the Clactonian. (Both of these are found in Western Europe during early Lower Palaeolithic times, and they were subsequently displaced by later industries employing more advanced types of percussion and pressure techniques.) But in spite of this and one other digression, the excellent summary of the billet or club technique (pp. 11–15) which has not been satisfactorily documented in North America, the classification and description of the basic methods of flint-working techniques found in this hemisphere leave little to be desired.

The opening chapter, which deals with "the inherent character of flint" is somewhat disappointing. Here, a summary of the present status of the problem is given, but this scarcely advances our knowledge of what flint really is beyond the fact that it is a fine-grained silicified rock with which many other similar rocks, of the same general family, are often confused. Whether or not, and how, it differs from chert is left in suspense. However, the only really serious mistake in this otherwise praiseworthy monograph is to be found in the glossary (p. 66). Here, the meaning of the terms "ripple marks" and "shatter marks" has been confused; in addition, two important definitions, those for the "point of impact" and the "bulbar scar," have been omitted. Since these terms are fundamental for purposes of describing flint working techniques, a typical flake showing these features is shown in the accompanying diagram (Fig. 37) and the terms are briefly described.

Ripple Marks—These are also called concentric rings, or waves, of percussion. They characterize the flake surfaces of those substances, flint, glass, obsidian, etc., which have a conchoidal fracture. Ripple marks are "a system of small concentric rings circling the point of force application and comparable to the ripples caused in a pool of water when a stone is dropped into it."[1] In other words they radiate outward from the point of impact. They are *not* the same as shatter marks.

Shatter Marks—These are also called splits or fissures. They are lines on the flake surface which converge on the point of impact and are caused by the splitting or tearing action set up in the flint core by the blow delivered for the removal of the flake. These lines are, in a general sort of way, perpendicular to the ripple marks or at least to certain chords subtended by them.

Point of Impact—This occurs at the apex of a bulb or cone of percussion. It is the point on the striking platform of a flint core or flake where the blow has been struck or the pressure applied.

Bulbar Scar—The French word *traillure* is also used for the bulbar scar. It may be defined as a small flake scar, formed simultaneously with the flake upon which it appears, somewhat below and to one side of the point of impact. The exact reason for its detachment is unknown.

In the interests of establishing a uniform nomenclature for stone age archaeologists in both the New and the Old World, it is hoped that the well-known definitions given above will be adopted by workers here in the United States.

HALLAM L. MOVIUS, JR,
Peabody Museum of Harvard

The Stone Age of Mt. Carmel. II, The Fossil Remains from the Levalloiso-Mousterian. T. D. MCCOWN and SIR ARTHUR KEITH. (pp. xxiv+390, tables 88, pls. 28, figs. 247. Oxford University Press, New York.)

Schoetensack on the Heidelberg jaw, Verneau on Grimaldi, Boule on La Chapelle, Black and Weidenreich on *Sinanthropus*, and, now, McCown and Keith on the Mt. Carmel material—numbers and relative completeness, plus the experience of Keith and the ability of McCown, combine to rank the present report as a classic.

At Mugharet es-Skhūl and Mugharet et-Tabūn, caves on the west slope of Mt. Carmel in Palestine, twelve relatively complete skeletons dating to the Levalloiso-Mousterian were recovered. Ten (3 children, 2 adult females, 5

[1] Definition given by Ellis, p. 66, for the term "shatter marks."

adult males) were from Skhūl, two (1 adult female, 1 adult male) from Tabūn. Additional fragmentary material was recovered from both sites.

On the basis of morphological characters, especially dental, cultural identities, contemporaneity in time, and contiguity in space the authors conclude that the Skhūl and Tabūn types belong to the same species or race. They are placed at either end of a normal range for *Homo*, the Skhūl type nearer Cromagnon (Neanthropic), the Tabūn type nearer the Krapina Neanderthaloids (Paleanthropic). Of 111 morphological traits studied comparatively, the Mt. Carmel material is Neanderthal in 16 (14.4%), Cromagnon in 32 (28.8%), intermediate in 46 (41.4%), indeterminate in 13 (11.7%), and unique in 4 (3.6%). Such a combination at first glance suggests mixture, or hybridization, but the authors say rather that the relationship is due to evolutionary divergence, or, in other words, to common descent from a similar ancestral form.

This conclusion is not an unexpected one for, in his 1929 report on the crania from the Tarim Basin, Sir Arthur pointed out that the Loulan type was a blend of Mongoloid and Caucasoid traits, an intermediate form. He concluded: "This type is to be explained not by hybridity but by the natural process of evolution." The Taklamakan desert of Chinese Turkestan was stated to be on the "great racial divide" which separates people of Mongoloid stock from other peoples of southern Asia and of Europe: on either side of the divide are zones of intermediate types. The Loulan is such a type: it bridges the gap between Mongoloids of the Kirghez type and the Caucasoid Iranian type of the Panirs and Persia.

An analogous situation is met with at Mt. Carmel, for it, too, is regarded as a transitional zone, a sort of "racial divide," with Paleanthropic (Neanderthal) forms to the west, Neanthropic (proto-Cromagnon or proto-Caucasoid) to the east. In this sense, western Asia becomes the incubator for the physical types appearing in their adult form in Europe. The Mt. Carmel forms are regarded as having diverged from the main line of human evolution in western Asia in early Pleistocene at a date *later* than the ancestral stock of the European Neanderthals, but *earlier* than the European Cromagnons. It is in this sense that Mt. Carmel is intermediate: Paleanthropic traits are on the way out, Neanthropic on the way in. The "blend" is, therefore, due to evolution rather than hybridization.

This explanation meets a stumbling-block in the earlier Piltdown-Steinheim-Swanscombe relationship: the pedomorphic traits in Piltdown, the Neanthropic characters in S einheim and Swanscombe. We have, in Europe, pre-Neanderthal Neanthropic forms, at Mt. Carmel post-Neanderthal Neanthropic elements. An evolutionary sequence can hardly explain the situation, unless it is assumed that one of two alternatives occurred: (1) that earlier waves of incipiently Neanthropic forms reached Europe, or (2) that Neanthropic traits germinated after leaving the supposed *Urheimat* in western Asia. It is too early to say, but it seems more likely that Neanthropic elements are older than those met at Mt. Carmel.

The volume is excellently written and lavishly illustrated. It *must* be read and studied by every American anthropologist interested in human evolution and human cultural development.

W. M. KROGMAN
University of Chicago

Prehistoric Man of the Santa Barbara Coast. DAVID BANKS ROGERS. (Santa Barbara Museum of Natural History, pp. 452, pls. 78, maps 34. Santa Barbara, California, 1929.)

Although this report has been previously reviewed,[1] a marked increase of archaeological activity in the West during the last decade indicates the desirability of measuring Rogers' report in the light of recent developments.

Briefly, the report consists of an introductory chapter (I) outlining the historical background of the Chumash (these are Rogers' channel people, or "Canaliño"), together with a sketch of early archaeological activities in this rich and long-exploited region. Four succeeding chapters (II–V) list, describe, give the internal content, and map the archaeological sites of the Santa Barbara Channel mainland. Three chapters (VI–VIII) are concerned with archaeological sites of the main Channel Islands (San Miguel, Santa Rosa, and Santa Cruz). Then follow three concluding chapters (IX–XI) which describe the content of each of the three cultural periods (Oak Grove, Hunting People, and Canaliño). Two appendices present (1) the anthropometry of the skeletal remains of the bearers of the three cultures, and (2) a summary of the fauna of the Channel Islands.

M. R. Harrington, author of the earlier review, has succinctly and critically summarized the three periods identified by Rogers, and has pointed out with acuity some of the errors and corrections which might otherwise have been my self-appointed and unwelcome task. The aim of the present review is to call attention to the value of this somewhat neglected work on California archaeology.

In 1929, any report of cultural stratification was received with interest. The Santa Barbara succession of archaeological horizons outlined by D. B. Rogers as (earliest) Oak Grove, (intermediate or transitional) Hunting People, and (latest) Canaliño, soon received independent verification by the less extensive, but more carefully controlled work of R. L. Olson.[2]

In the never-ending search for early cultures, they, when found, generally become either the aim of criticism, or offer a challenge to be placed within a framework of reference. So far as I know, the actual existence of the earliest Santa Barbara culture (Oak Grove culture) has not been challenged. Because

[1] *American Anthropologist*, Vol. 32, pp. 693–696, 1930.

[2] *University of California Publications in American Archaeology and Ethnology*, Vol. 28, pp. 1–21, 1930; *Proceedings, Fifth Pacific Science Congress, Canada*, Vol. 4, pp. 2841–2846, 1934; AMERICAN ANTIQUITY, Vol. 2, pp. 108–116, 1936; *Southwest Museum Masterkey*, Vol. 13, pp. 31–35, 1939.

Rogers never pulled it together and listed its trait-inventory, the Oak Grove culture has not been properly known. This will doubtless continue to be the state of affairs until Rogers or some other qualified archaeologist makes a careful study of the remains now in the Santa Barbara Museum of Natural History. Among the traits certainly present in the Oak Grove complex are the following: highly metamorphosed and indurated refuse deposits; fully-extended burials, the body usually lying on the ventral, occasionally on the dorsal side; complete permineralization of the bones lying within the calcareous, indurated midden-strata; abundant use of the mano and metate; rare presence of the mortar and pestle; large, heavy chipped projectile points (most often leaf-shaped or with squared base); crude flint scrapers with flaked edges; semi-subterranean house pits (13–15 feet in diameter, 30 inches deep); abundance of red ocher in graves; graves marked by piling beach boulders, metates, etc. on top; bone bodkins (hairpins?), but use of bone apparently rare; diet mainly of acorns and shellfish; hunting and fishing little employed in the food quest. Among culture traits stated to be absent are: cremation, delicately flaked, small arrow points; pottery; agriculture. The physical type is noteworthy. Although Rogers' early series comprises only seven crania, the type seems definitely dolichocephalic (av. 73.5) and quite broadnosed (av. 51.5).

Let us see now where the Oak Grove culture has been fitted by subsequent workers into the general picture of early culture complexes in the West. Olson, who is best qualified, has never explicitly compared, by a trait analysis, his Early Mainland culture with Rogers' Oak Grove culture, but has stated[3] that both "reconstructions agree in the main, disagree in numerous specific points." It should be noted that Olson recovered no Early Mainland period burials, and that his culture inventory[4] is composed of dissociated artifacts recovered from general-deposit digging, whereas Rogers found many burials and may therefore, have listed the grave-furniture aspect of the Oak Grove culture. An outside observer cannot settle this problem of the correlation of two independent workers' results. It would perhaps be easier to approach this problem through Rogers' material, since Olson has presented his results in tabular listings, yet without defining or illustrating his types.

E. B. Sayles[5] and H. S. Gladwin[6] have included the Oak Grove culture as one of several coexistent facies of a basic, pre-agricultural seed-gathering substratum of American cultures. M. J. Rogers[7] denies Gladwin's (and, inferentially, Sayles') proposition and, in addition, finds no relationship between his San Dieguito-Playa complex and the Oak Grove culture,[8] as Fenenga and I

[3] *Op. cit.*, 1934, p. 2841. [4] *Op. cit.*, 1930, pp. 14, 16.

[5] *Gila Pueblo, Medallion Papers*, No. 17, tables 11 and 12.

[6] *Gila Pueblo. Medallion Papers*, No. 26, pp. 33, 114; map 2.

[7] *American Anthropologist*, Vol. 42, p. 178, 1940.

[8] *San Diego Museum Papers*, No. 3, p. 71, 1939; *American Anthropologist*, Vol. 42, p. 178.

once suggested,[9] or to the Level I horizon at Malaga Cove.[10] The latter, however, seems to be pre-Oak Grove in point of time, and non-Oak Grove in content. The Malaga Cove Level II culture is likened by E. F. Walker to the Oak Grove complex. This last seems to be only a possibility, since it is based on comparison of only a few specimens of a few types. Thus, as soon as someone attempts to find a place in his family for the Oak Grove culture, a genealogical expert arises to denounce it as an illegitimate.

The recently disclosed sequence of cultures in the lower Sacramento Valley has presented so many striking similarities to the total Santa Barbara sequence that I have called attention to the cultural (and, with less certainty, temporal) parallels between the two areas.[11] The resemblance between the Early Sacramento and Oak Grove horizons is particularly striking, and I believe the claim of kinship (whether lineal or collateral yet remains to be seen) will hold. G. F. Carter[12] has extended the occurrence of the Oak Grove culture in relatively pure form north to Point Sal, and has furnished additional evidence of the Sacramento-Santa Barbara cultural community. At Buena Vista Lake, W. R. Wedel has discovered in his lowest mound stratum, a relatively poor and unspecialized culture which may show affiliation with both the Oak Grove and Early Sacramento horizons.[13] Although simple dolichocephaly and platy- or low mesorrhinity in geographically separated skeletal assemblages do not mean much by themselves, on the other hand they may prove significant if a similar later stock has submerged them, as intimated by T. D. Stewart.[14] F. H. H. Roberts, Jr., in a recent article[15] has suggested that the Oak Grove culture is probably early in time, yet later than the several cultures described by M. J. Rogers, the Campbells, Amsden, etc., in the playa lake and desert regions of Southern California. This seems to be a relatively correct view, and will probably be generally endorsed. The Santa Barbara Museum has apparently continued its early interest judging from W. B. Holt's statement[16] that "artifacts attributable to its culture (Oak Grove) have been found from Morro Bay to the southwestern corner of San Diego County."

What should be done, of course, is to make a thorough museum study of the Oak Grove culture remains. When this study is performed, a re-check of the stratigraphic position of the Oak Grove culture could be carried out.

As for the Hunting People culture, which is intermediate in time and of a transitional nature in culture-forms and frequencies between the Oak Grove

[9] *American Anthropologist*, Vol. 41, p. 395, 1939.

[10] *Southwest Museum Masterkey*, Vol. 11, pp. 210–214, 1937.

[11] *American Anthropologist*, Vol. 41, pp. 394–396; *Southwest Museum Masterkey*, Vol. 13, pp. 31–35. [12] AMERICAN ANTIQUITY, Vol. 6, 1940.

[13] Ms. to appear as a bulletin of the Bureau of American Ethnology.

[14] *Smithsonian Institution, Miscellaneous Collections*, No. 100, p. 41, 1940.

[15] *Ibid*, p. 91.

[16] *Santa Barbara Museum of Natural History*, Leaflet 12, pp. 4–8, 1937.

and Canaliño complexes, there has been little said. It does not correlate exactly with the Intermediate Mainland culture, according to Olson, nor does it bear a striking resemblance to the Transitional Sacramento culture. Harrington believed that the Hunting People culture might represent an early phase of the Canaliño. It may merely be early evidence of the Canaliño who brought new cultural forms and effected ever-increasing modifications of the earlier culture. In time it became dominant and achieved its own distinctive stamp, showing little direct effect of its earlier mixture. Such a process apparently occurred in the Sacramento Valley area. A comparison of the Sacramento-Santa Barbara middle culture stages has already been made.[17]

As for the Canaliño culture, which represents the archaeological manifestations of the historically and ethnographically known Chumash Indians, there is little that need be said. In the paper last cited is a list of resemblances between the Canaliño and Late Sacramento cultures.

This rather extended review has aimed to indicate the importance of D. B. Rogers' book in giving evidence, unfortunately in somewhat unsystematized fashion, of the existence of a significant early culture which urgently needs careful, full, and scientific description.

ROBERT F. HEIZER
University of Oregon

Indians of the United States. CLARK WISSLER. (American Museum of Natural History Science Series, pp. xvi+319, illustrated. New York: Doubleday, Doran and Company, 1940.)

The American public should welcome this addition to non-technical literature on the American Indian, which is written in an easy-to-read style, is full of sound general factual matter, and is rich in entertaining narrative. The specialist in anthropology should also welcome any such effort on the part of a fellow specialist to sell anthropology to the reading masses whose continued, if not increased support, direct or indirect, is so essential to the continuation of anthropological research and instruction.

This is the first of a series of science-subject books intended for general readers, but to be written by students eminently familiar with their subjects. Its stated purpose is that of depicting the fundamental features in four centuries of Indian history and culture, with a brief consideration of prehistoric background; but the real theme of the book is the Indian of the frontier, his dramatic struggle to prevent the advance of the white invasion, his failure, and his mode of life as modified through residing with and under the domination of the white man.

The first five chapters are intended to supply an historical and cultural frame for the Indians of the United States, postulating their origin and progressive cultural development. One might stop to question the accuracy of such a pro-

[17] *Southwest Museum Masterkey*, Vol. 13, pp. 31–35.

cedure as placing a "stone boiling" cultural phase temporally intermediate between the Folsom type of early hunter on the one hand and the "farmers and potters" on the other, if one were not so distracted by the realization that Wissler is not here presenting his initial picture of culture in terms of culture areas. His later, more detailed discussion of culture (Part II) follows a linguistic classification and geographical distribution of linguistic divisions. The only discussion of culture areas is near the back of the book (pp. 249–250) and requires approximately but a single page. I am disposed to commend rather than criticize the author's apparent rejection of the culture area concept as a means of presenting his subject to the average reader; although I question the historical and cultural accuracy of the simplified picture of cultural succession set forth in Part I.

In Part II, a summary of culture and history for each of "the great Indian families," there is included an interesting collection of historical and biographical data and anecdotes relating to the periods of Indian-white contact. These appear to cover the more important facts, and provide more information on outstanding Indian personalities than I have seen elsewhere inside a single popular cover. These characters are pictured either with unprejudiced fairness or with friendly bias, with the exception of Geronimo whose career is described as one of "blood and pillage" (p. 204). The reader is left to infer that Geronimo is more deserving of this tacit condemnation than other leaders of the struggle to defend Indian democracies against the white dictators. The reviewer doubts the justice of this. The method of presenting culture and history together as integrated parts of a single story is well suited to the purpose and usefulness of the book, and serves admirably to illustrate the close relationship and interdependence of history and culture.

The third, and final, major division is, "The Indian Way of Life." This title inadequately prepares the reader for some very germane matter relating chiefly to acculturation (see Webster). To my way of thinking, this is the best part of the book, including brief but well selected and presented discussions of such subjects as: Indian cultural influence upon the white man; the effect of guns, horses, and liquor upon the Indians; cultural conflicts between the Indians and the whites as resulting from divergent experiences and traditions, and the failure of each to understand the other; life at those concentration camps known as reservations; and Indian inventions and contributions to world culture. Included here is also a section on the Indian as a child of nature, which debunks the too popular concept of the beauties of living close to nature, but which fails properly to emphasize the unnatural complexity of many elements in Indian cultures.

At the risk of appearing to try to pick to pieces a contribution of unquestioned worth, I find in the book a number of statements, some of which, at least deserve critical questioning. There are several suggestions or implications of hypothetical long migrations and journeys to account for phenomena which may be logically explained on a basis of more gradually operative, less direct agents of diffusion. For example: "Perhaps the seed-raising hunters of the Mississippi

Valley made many long and hazardous journeys to the southland (Mexico) and to the country of the cliff dwellers for some of the miraculous seed (maize)" (p. 23); " . . . there is little reason to doubt that the Ponca learned this (human sacrifice) from the Aztec" (p. 214). What are the cultural criteria for separating the Ojibwa into Ojibwa, residing north of Lake Superior, and Chippewa, residing south thereof (pp. 97–98)? The Wisconsin representatives call themselves Ojibwa. In listing important culture traits for the builders of the Ohio (Hopewellian) Mounds, copper is not mentioned (pp. 30–32). Algonkian pottery is described as black (p. 59).

In the list of "inventions" known in both the Old and New worlds before 1492 (p. 295), no mention is made of the loom, masonry, the column and corbeled arch in architecture, or pottery! The list of New World inventions unaccountably includes such relatively unimportant items as head shrinking, pronged cigar holders, and whistling jars (p. 295), and fails to mention the birch-bark canoe, the sign language of the Plains, the domestication of the turkey and llama, such ball games as lacrosse, and a variety of important food recipes of which many have been adopted by the white successors. Moreover, the Indian contribution to world agriculture is disposed of in this list by: "maize and other plants." Some of these items are mentioned elsewhere in the work, but nowhere are they listed as such. The general public has no wide acquaintance with these facts, which always arouse interest when presented to an average audience.

The Siouan family, as classified on page 154, includes the Oto and Iowa but not the Missouri, although the Missouri are mentioned in the ensuing chapter. The Ponca are listed here but are not mentioned in the chapter. The reviewer desires to register his vigorous objection to the statement that such characteristically white songs as "The Waters of Minnetonka, Red Wing, etc., . . . immortalize Dakota music" (pp. 156–157). They are as remotely similar to any Indian music as "Old Black Joe" is to the music of African Negroes. Actually, they create a false impression of both Dakota music and society.

Having some slight familiarity with California Indian mythology and some first-hand knowledge of their ceremonies, I cannot concur with the judgement that these, " . . . in the main, seem weak in ideas and dramatic quality" (p. 185).

As regards his treatment of archaeology, I cannot avoid the reaction that Wissler employs numerous generalities which are more to be identified with the opinions of a generation ago than with present conclusions, with the outstanding exception of his acceptance of the Folsom culture. The character of this work would not permit a technical discussion of the relative merits of various modern theories, but if Indian prehistory is to be considered at all, some recognition should be given to the development and wide influence of such generally recognized manifestations as Hopewellian, Middle and Upper Mississippi, and Woodland, whether identified by these or other names, with some logical conjecture as to how they may tie into the general Indian picture. A mere description of a

list of artifacts and features found in Ohio mounds, set in an aura of mystery, does not satisfy justifiable expectations. Nor does a dismissal of the prehistoric period in terms of such pseudo-ethnic groups as ancient hunters, stone boilers, maize gardeners, ceremonial pipe smokers, and builders supply the answer. After all, we know a great deal more about the outstanding pre-contact cultures in the greater Mississippi Valley, including their relations to historic peoples, than we do about the Folsom culture. Surely this knowledge could be woven into a general picture which would serve to evaluate later trends in Indian culture and supply the general reader with a much clearer understanding of Indian antecedents than does the presentation of a succession of separate trait developments, such as stone boiling or the use of the ceremonial pipe, which do not portray the history of any actual ethnic or cultural group of people.

W. C. McKern
Milwaukee, Wisconsin

Archaeological Work in the Ackmen-Lowry Area Southwestern Colorado. Paul S. Martin, with reports by Carl Lloyd and Alexander Spoehr. (Anthropological Series, Field Museum of Natural History, Volume XXIII, Number 2. Chicago, 1938.)

Modified Basket Maker Sites, Ackmen-Lowry Area Southwestern Colorado. Paul S. Martin, with a report by John Rinaldo. (Anthropological Series, Field Museum of Natural History, Volume XXIII, Number 3. Chicago, 1939.)

The first of these papers presents the record of four small sites near Ackmen, Colorado, excavated in 1937; and the results of a "discontinuous intensive survey of 16½ square miles" in the Ackmen-Lowry region.

Since wood suitable for reading was not recovered, no exact dates could be given for any of the sites. However, using stratigraphic data from the Lowry Ruin, and on the basis of a typological study of pottery and architecture, Dr. Martin fits the four sites into the time sequence thus:

"Site 1: early Pueblo I period (about A.D. 800).
Site 4: late Pueblo I period (about A.D. 850).
Site 2: early Pueblo II period (about A.D. 900).
Site 3: late Pueblo II period (about A.D. 1000)."

The 1938 report, with its concluding suggestions as to stability and instability of culture gives the impression of a valiant effort to make far-reaching conclusions on the basis of data meager on one hand and intractable on the other. The time estimate obviously was too long. Positive dating of the 1938 Site 1 at 855–872 has raised the lower limit by three-fourths of a century and it is to be expected that datable timbers would similarly push back the upper one. In this case the four structures would be contemporaneous within say two generations. That they were so may well be inferred from the unstandardized character of the underground rooms, each of which in some features exemplifies transition

from the earth walled dwellings of earlier times to the formal Pueblo kiva.

The statistical analysis of potsherds by which the relative ages of the sites was fixed confirms general ceramic trends for the region, but I do not believe that a small difference in percentages of the ranking wares can be depended upon to reveal absolute age within narrow limits. The trouble is not with the method but with the materials, because the types have not and perhaps cannot be definitely bounded. Lino gray is a trap for the most experienced as Colton well realizes.[1] Mancos Black-on-white is a term applied to the bafflingly complex ensemble of early Pueblo black-on-white wares. No two observers could be expected always to agree as to what is Mancos and what is not. Nor is it certain to what degree McElmo Black-on-white is proto- or local Mesa Verde. And while extreme cases are easy enough to judge, there are many whole specimens and far more sherds that one would list as McElmo and another as Mesa Verde. That the confusion bound to result from types not sharply differentiable is present in Dr. Martin's tables would seem to be shown by certain of his illustrations. A strongly individual black-on-white ware characteristic of the region from Mesa Verde east to the Piedra and contemporaneous with Abajo Red-on-orange seems clearly to be represented by the sherds in Pl. CI, two left hand in second row from top and center two in next row below; Pl. CLI, center in bottom row and left hand in next row above; Pl. CLXVII, right in middle row. Again, the large sherd at top center of Pl. CLXVII, listed tentatively as Reserve, is from the upper half of a typical Mesa Verde olla. And two other sherds that would be at home in many a Mesa Verde vessel are shown in Pl. CLXXV, lower left and right center as Mancos Black-on-white.

The archaeological survey, conducted and described by Carl Lloyd, located 180 sites in 16½ square miles of territory the units of which were diagonally adjacent quarter sections. Of these, only 80 yielded the minimum of 50 sherds deemed requisite for statistical analysis. The four ranking pottery assemblages were found to occur in association with recognizable different house types in the following chronological order: (1) Lino Gray at slab villages having depressions that presumably were pit houses; (2) Lino Gray, Mancos Black-on-white, indented corrugated at small sites with slab-and-rubble, pole-and-brush or crude masonry walls and kiva-like depressions; (3) Mancos Black-on-white, indented corrugated at unit type houses; (4) McElmo Black-on-white, indented corrugated at buildings characterized by Mesa Verde masonry technique. These findings stand in confirmation of conditions general on the north side of the San Juan. But the advisability of not accounting for the 100 sites that failed to yield 50 sherds each, certainly is to be questioned. From the Mesa Verde eastward to the Piedra there are scores of small sites at most of which 50 sherds could not possibly be found. These are Basket Maker sites in general older than the large crescentic houses, at which Lino Gray and Lino Black-on-gray are the

[1] AMERICAN ANTIQUITY Volume 5, p. 338

pottery types. There is high probability that such exist in the Ackmen country and that the earliest ceramic horizon of the region was overlooked because of a preoccupation with analysis. A survey in the Southwest should attempt to establish the identity of sites with few sherds as well as those with many. And a very careful search should be made for sites with no sherds at all. These exist in some places and where they can be found they are an invaluable aid in lengthening the back trail of the Anasazi.

The second report is an admirably presented record of two relatively large sites excavated in part during the summer of 1938. Site 2, the older, consisted of three long buildings extending from east to west, the central one irregularly crescentic, with concave side to the south; the others relatively straight. The structures were two rows of rooms in width. The outer (northern) row in each case consisted of small storage chambers walled with slabs at the base, topped with rubble. The larger rooms of the inner file, walled with upright posts and mud, were the living quarters, as shown by the presence of firepits and grinding paraphernalia. In front (south) of the above ground structures were the earth-walled subterranean rooms of the village.

At Site 1, masonry had practically supplanted other materials in wall construction. The buildings were smaller and less uniform in orientation, perhaps to conform to the narrow cliff tongue on which they were built. Predominant pottery types at both sites were Lino Gray and Abajo Red-on-orange. Dates (by Getty, checked by Douglass and Haury) were: Site 1, 747+X−768+X; Site 2, 855−872. The close similarity of the remains at these sites to some of the same general age lying farther westward, is clearly brought out by Appendix C, Notes on the Excavations at Alkali Ridge, Utah, by J. O. Brew.

Dr. Martin lists the 1938 sites as Modified Basket Maker. I regard them as early Developmental Pueblo because of their very close resemblance to sites in the La Plata-Mancos district, which, because of ceramic content and the skull form of the inhabitants, I have described as Pueblo I.[3] But regardless of what they are called, they stand as typical and illuminating examples of the predominant architectural vogue of the eighth and ninth centuries in the country north of the San Juan. Dr. Martin makes the appearance in the region of indented corrugated and Mancos Black-on-white wares the point of demarcation between Modified Basket Maker and Developmental Pueblo. Repeatedly he expresses the conviction that these wares came in from Chaco Canyon. This may all be true. Certainly in the chaotic ensemble of black-on-white wares preceding the Mesa Verde trend, there is a strong Chaco-like strain over the whole country north of the San Juan. That strain reached its highest development in later times in the Chaco district. But until some positive dating has been done in the north country, it would be the part of caution to retain the possibility of a con-

[3] *Archaeological Studies in the La Plata-Mancos District.* Pub. 519, Carnegie Institution of Washington, 1939.

temporaneous rise of the Chaco trend both north and south of the San Juan, and of its conceivable priority in the north.

Unit type houses and a rimrock pueblo excavated for the State Historical Society of Colorado in 1928 and 1929 Dr. Martin presents in Appendix A of the 1939 report as representative of late Pueblo II, with estimated dates respectively of A.D. 1000 and 1075 plus or minus 25 years. Pottery from the unit type houses is described as "Mancos Black-on-white, indented corrugated, a sprinkling of McElmo Black-on-white." That from the rimrock Pueblo is "McElmo Black-on-white, indented corrugated; a little Mancos Black-on-white." Such an alignment of pottery would indicate that the rimrock village was later than the unit type houses, and so it probably was, but there is pretty good evidence that both were much later than their postulated dates.

In the earlier publications (*Colorado Magazine*, June, 1929; January, 1930) a mug from the unit house shown on map 29, Appendix A, is spoken of as "having a typical Mesa Verde Black-on-white decoration" and a vessel from the rimrock pueblo is "a typical bowl of the "classic period" of Mesa Verde ware." The illustrations show other vessels from both sites that are Mesa Verde in every respect.

Obviously, then, some of the unit houses were occupied to full Mesa Verde time, and the rimrock pueblo would seem to me representative of the canyon head sites of Mesa Verde age so common in the furrowed region between Mesa Verde and the Blue Mountains. Since the classic stage in Mesa Verde pottery was reached in the thirteenth century, it is more reasonable to believe that the rimrock pueblo was built after 1200 than before. I can see no justification for presenting it as representative of Pueblo II.

Events in the Great Period as traced for the general reader in the summary are in several respects at variance with convictions that I have reached as the result of long thought and observation. While large stone pueblos did develop in the Great Period, at the same time small houses of the general unit type, some nearby, others far removed from the nearest great house, continued to be built and lived in until the very close of Mesa Verde occupation. Inhabitation of small open sites over the entire sweep from the Animas to the Blue Mountains as long as Mesa Verde pottery was made, contradicts a general exodus at 1150 or any other time from the open to the cliffs and puts in decided question the part that hypothetical nomads played in shaping events during the Great Period.

While I seem to have found a good deal of fault, it is by no means my intention to underestimate the value of Dr. Martin's researches. The reports are admirably presented. Maps and cross sections are simple, well drawn and printed large enough to be easily readable. Photographs are excellently taken and superbly reproduced. And there is a gratifying lack of typographical errors. I visited the 1938 sites near the close of the field season and came away with the conviction that I had never seen excavation more beautifully done. In the three

sections of Vol. XXIII he has recorded a wealth of information that is a fitting monument to the ten years he devoted to a study of the Lowry-Ackmen region. It will contribute greatly toward filling out the mosaic of the prehistory of the northern Southwest that someday will be completed. It is a matter of regret to this reviewer that he did not continue his investigations in the area he knows so well, where presumably there are earlier culture stages to be identified and where some lacunae still remain to be filled in.

EARL H. MORRIS
Carnegie Institution of Washington

SOME RECENT PUBLICATIONS

UPPER NORTH AMERICA

Albritton, Claude C. and L. Gray Pattillo, Jr., "A Human Skeleton found near Carrollton, Texas" (*Field and Laboratory* 8, No. 2. pp. 59–64. 1940).

Barbeau, Marius, "Indian Trade Silver" (*Transactions of the Royal Society of Canada*, Section II, 3rd series, Vol. 36, pp. 27–41. Toronto: University of Toronto Press, 1940).

Barbeau, Marius, "The Modern Growth of the Totem Pole on the Northwest Coast" (*Smithsonian Annual Report for 1939*. pp. 491–498, 5 plates. Washington, 1940).

Birket-Smith, Kaj, *Anthropological Observations on the Central Eskimos. Report of the Fifth Thule Expedition, 1921–24.* (Danish Expedition to Arctic North America 3, No. 1. 121 pp., 24 figs., 32 plates. Copenhagen, 1940).

Brew, J. O., "Preliminary Report of the Peabody Museum Awatovi Expedition of 1939" (*Plateau* 13, No. 3. pp. 37–48, illus. Flagstaff: Museum of Northern Arizona, 1941).

Brown, Charles E., "A Fluted Copper Spud" (*Wisconsin Archeologist* N.S. 21, No. 4. pp. 65–68. Milwaukee: Wisconsin Archeological Society, 1940).

Buis, A. R., "The Prehistoric Villages and Camp Sites of the Peoria Lake Area" (*Illinois State Academy of Science Transactions* 33, No. 2. pp. 42–44. Springfield: The Academy, 1940).

Bushnell, David I., Jr., *Evidence of Early Indian Occupancy Near the Peaks of Otter, Bedford County, Virginia* (Smithsonian Miscellaneous Collections 99, No. 15. 14 pp., 5 plates. Washington, 1940).

Bushnell, David I., Jr., "The Use of Soapstone by the Indians of the Eastern United States" (*Smithsonian Annual Report for 1939*. pp. 471–489, 10 plates. Washington, 1940).

Butler, Mary, *Three Archaeological Sites in Somerset County, Pennsylvania* (Pennsylvania Historical Commission Bulletin 753. 76 pp., illus. Harrisburg: Pennsylvania Historical Commission, 1939).

Campbell, T. N., editor, "Recent Field Work in Texas" (*Texas Archaeological News* 2. pp. 1–26. Austin, 1940).

Caywood, Louis R., "The Spanish Missions of Northwestern New Spain" (*The Kiva* 6, No. 4. pp. 13–16. Tucson, Arizona: Arizona Archaeological and Historical Society, 1941).

Cummings, Byron, *Kinishba a Prehistoric Pueblo of the Great Pueblo Period* (xiii, 128 pp., illus., 35 colored plates. Tucson, Arizona: Hohokam Museums Association and the University of Arizona, 1940).

Douglas, Frederic H. and Rene d'Harnoncourt, *Indian Art of the United States* (220 pp., 216 plates. New York: Museum of Modern Art, 1941. $3.50).

Flannery, Regina, "The Cultural Position of the Spanish River Indians" (*Primitive Man* 13, No. 1. pp. 1–25. Washington: Catholic Anthropological Conference, 1940).

Gifford, E. W., *Californian Bone Artifacts* (Anthropological Records 3, No. 2. pp. 153–237, illus., maps. Berkeley and Los Angeles: University of California Press, 1940).

Gordon, Vivian, "Stabilizing Ruins of Prehistoric Structures: Examples of Early American Craftsmanship" (*Southwest Builder and Contractor*. pp. 18–25. 1940).

Harrington, M. R., "Copper Figurines from Arizona" (*Masterkey* 15, No. 1. pp. 8–9. Los Angeles: Southwest Museum, 1941).

Heizer, Robert F., "The Distribution and Name of the Chumash Plank Canoe" (*Masterkey* 15, No. 2. pp. 59–61. Los Angeles: Southwest Museum, 1941).

Hunter, Helen Virginia, *The Ethnography of Salt in Aboriginal North America* (63 pp. Philadelphia, 1940)

Janssen, Raymond E., "Indian Trail Markers in Illinois" (*Illinois State Academy of Science Transactions* 33, No. 2. pp. 46–47. Springfield: The Academy, 1940).

Martin, Paul S. and Elizabeth S. Willis, *Anasazi Painted Pottery in Field Museum of Natural History* (Field Museum of Natural History Anthropology Memoirs 5. 283 pp., 125 plates. Chicago: Field Museum, 1940).

Narratives of the Coronado Expedition, 1540–1542, George Peter Hammond and Agapito Rey editors (Coronado Cuarto Centennial Publications 2. 425 pp. Albuquerque: University of New Mexico, 1940).

Overton, George, "Trade Goods" (*Wisconsin Archeologist* N.S. 21, pp. 71–73. Milwaukee: Wisconsin Archeological Society, 1940).

Reid, R. L., "The Indian Stream Territory" (*Transactions of the Royal Society of Canada*, Section II, 3rd series, Vol. 36. pp. 143–171. Toronto: University of Toronto Press, 1940).

Reynolds, Frances R., "Embroidered Designs on Acoma Breech Clouts" (*Clearing House for Southwestern Museums Letter* 29. pp. 95–98. Denver, 1940).

Robbins, Maurice, *Richardson Collection* (Attleboro Museum of Art and History. 17 pp. mimeographed).

Robbins, Maurice, *Two Habitation Floors at the Faulkner Spring Site* (Massachusetts Archaeological Society Contributions 1. 19 pp., 8 figs., 3 plates. Cambridge: The Society, 1941).

Rogers, Malcolm J., *Aboriginal Culture Relations Between Southern California and the Southwest* (San Diego Museum Bulletin 5, No. 3. pp. 1–6. San Diego: San Diego Museum, 1941).

Schoenbeck, Ethel, "Prehistoric Aboriginal Pottery of the Peoria Region" (*Illinois State Academy of Science Transactions* 33, No. 2. pp. 44–45. Springfield: The Academy, 1940).

Shinn, G. Hazen, *Shoshonean Days* (183 pp. Glendale, California: Arthur H. Clark Co., 1941).

Steen, Charlie R., "The Upper Tonto Ruins" (*The Kiva* 6, No. 5. pp. 17–20. Tucson, Arizona: Arizona Archaeological and Historical Society, 1941).

Swanton, John R., *Linguistic Material from the Tribes of Southern Texas and Northeastern Mexico* (Bureau of American Ethnology Bulletin 127. 145 pp., tables. Washington, 1940).

Texas Archaeological News, an Occasional Report Issued by the Council of Texas Archaeologists. (Recent Field Work in Texas No. 2. 26 pp. Austin, Texas, 1940. mimeographed).

Tichy, Marjorie Ferguson, "Six Game Pieces from Otowi" (*El Palacio* 48, No. 1. pp. 1–6. Santa Fe, 1941).

Tschopik, Harry, Jr., *Navaho Pottery Making, an Inquiry into the Affinities of Navaho Painted Pottery* (Peabody Museum of American Archaeology and Ethnology Papers 17, No. 1. 85 pp., 16 plates. Cambridge: Published by the Museum, 1941).

Wardle, H. N., "Hopi Kachinas" (*University Museum Bulletin* 9, No. 1. pp. 15–19, plates. Philadelphia: University Museum, 1941).

Webb, Wm. S., *The Wright Mounds, Sites 6 and 7, Montgomery County, Kentucky* (University of Kentucky Reports in Anthropology 5, No. 1. 134 pp., 69 figs. Lexington: University of Kentucky, 1940).

Weltfish, Gene, *Cave Dweller Twill-Plaited Basketry* (Contributions of the University of Denver 3, pp. 69–89, 11 figs. Denver, 1940).

Wisconsin Archeological Society, "Red Paint with Wisconsin Burials" (*Wisconsin Archeologist* N.S. 21, No. 4, pp. 74–76. Milwaukee: Wisconsin Archeological Society, 1940).

MIDDLE AMERICA

Caso, Alfonso, "El Entierro del Siglo" (*Revista Mexicana de Estudios Antropologicos* 4, Nos. 1 and 2. pp. 65–76, 11 figs. Mexico, 1940).

Dibble, Charles A., "El Antiguo Sistema de Escritura en Mexico" (*Revista Mexicana de Estudios Antropologicos* 4, Nos. 1 and 2. pp. 105–128. Mexico, 1940).

Hanke, Lewis and Miron Burgin, *Handbook of Latin American Studies No. 5.* (476 pp. Cambridge: Harvard University Press, 1940).

Linne, S., "Bird-nets of Lake Texcoco, Mexico Valley" (*Ethnos* 5, Nos. 3 and 4. pp. 122–130, 6 figs. Stockholm, 1940).

Vaillant, George C., editor, *A Sacred Almanac of the Aztecs* (*Tonalamatl of the Codex Borbonicus*) (American Museum of Natural History Popular Publication. 20 pp., 19 plates. New York: American Museum, 1940).

Zingg, Robert M. *Report on Archaeology of Southern Chihuahua* (Contributions of the University of Denver 3. pp. 1–69. Denver, 1940).

SOUTH AMERICA

Corbett, John M., "A Copper Mould from Ecuador" (*El Palacio* 48, No. 2. pp. 34–37. Santa Fe, 1941).

Ferdon, Edwin N., Jr., "The Excavation at La Libertad" (*El Palacio* 48, No. 2. pp. 38–42. Santa Fe, 1941).

Ferdon, Edwin N., Jr., "Reconnaissance in Esmeraldas" (*El Palacio* 47, No. 12. pp. 257–272, maps. Santa Fe, 1940).

Watkins, Frances E., "A Voice from the Past" (*Masterkey* 15, No. 1. pp. 5–7, illus. Los Angeles: Southwest Museum, 1941).

GENERAL

Boletin Bibliografico de Antropologia Americana, 4, Nos. 1 and 2 (Mexico, Instituto Panamericano de Geografia e Historia, 1940).

Spinden, Herbert J., "Sun Worship" (*Smithsonian Annual Report for 1939*. pp. 447–469, 6 plates. Washington, 1940).

SOCIETY FOR AMERICAN ARCHAEOLOGY
MEMBERSHIP 1940–41

(List as of March 10, 1941)

LIFE MEMBERS

BLISS, ROBERT WOODS, Dumbarton Oaks, Georgetown, Washington, D. C.
*BYERS, DOUGLAS S., Phillips Street, Andover, Mass.
HORNBLOWER, HENRY, II, 7 Louisburg Square Boston, Mass.
HOWELLS, W. W., Dept. of Anthropology, University of Wisconsin, Madison, Wis.
KRAFT, J. L., 400 Rush Street, Chicago, Ill.
LLOYD, MALCOLM, JR., 1930 Land Title Building, Philadelphia, Pa.
*NELSON, N. C., American Museum of Natural History, New York City
PARK, W. S., 111 South Second Street, Las Vegas, Nev.
TRUMBULL, MRS. WALTER, 75 Central Park West, New York City
*VAILLANT, GEORGE C., American Museum of Natural History, New York City

* Fellows

FELLOWS

AMSDEN, CHARLES, 4118 Monterey Street, Los Angeles, Calif.
BARRETT, S. A., Public Museum, Milwaukee, Wis.
BARTLETT, KATHERINE, Museum of Northern Arizona, Flagstaff, Ariz.
BELL, EARL H., 1502 Crockett Street, Amarillo, Texas
BENNETT, WENDELL C., Yale University, New Haven, Conn.
BEYER, HERMANN, Dept. of Middle American Research, Tulane University, New Orleans, La.
BLACK, GLENN A., Rural Route #2, Newburgh, Ind.
BUTLER, MARY, Media, Pa.
COLE, FAY COOPER, University of Chicago, Chicago, Ill.
COLLINS, HENRY B., JR., Bureau of American Ethnology, Washington, D.C.
COLTON, HAROLD S., Museum of Northern Arizona, Flagstaff, Ariz.
CRESSMAN, L. S., University of Oregon, Eugene, Ore.
DAVIDSON, D. S., Dept. of Anthropology, University of Pennsylvania, Philadelphia, Pa.
DEUEL, THORNE, Illinois State Museum, Springfield, Ill.
FORD, JAMES A., Dept. of Geology, Louisiana State University, University, La.
GAYTON, ANNA H., P.O. Box 880, Santa Cruz, Calif.
GIFFORD, E. W., University of California, Berkeley, Calif.
GLADWIN, HAROLD S., Gila Pueblo, Globe, Ariz.
GREENMAN, EMERSON F., University Museums, Ann Arbor, Mich.
GRIFFIN, JAMES B., University Museums, Ann Arbor, Mich.
GUTHE, CARL E., 4017 Museums Building, Ann Arbor, Mich.
HARRINGTON, M. R., The Southwest Museum, Los Angeles, Calif.
HAURY, EMIL W., Dept. of Anthropology, University of Arizona, Tucson, Ariz.
HAWLEY, FLORENCE M., Dept of Anthropology, University of Chicago, Chicago, Ill.
HILL, A. T., P.O. Box 100, Capitol Building, Lincoln, Neb.
HODGE, F. W., The Southwest Museum, Los Angeles, Calif.
HOWARD, EDGAR B., Bryn Mawr, Pa.
JENNESS, D., National Museum of Canada, Ottawa, Ontario, Canada
JUDD, NEIL M., U. S. National Museum, Washington, D.C.
KEYES, CHARLES R., 323 Tenth Avenue South, Mt. Vernon, Iowa
KIDDER, A. V., "The Red House," Beverly Farms, Mass.
KROEBER, A. L., University of California, Berkeley, Calif.
LAGUNA, FREDERICA DE, 221 North Roberts Road, Bryn Mawr, Pa.
LANGFORD, GEORGE, c/o McKenna Process Co., Joliet, Ill.
LINNÉ, SIGVALD, Statens Ethografiska Museum Stockholm, Sweden
LINTON, RALPH, Dept. of Anthropology, Columbia University, New York City
LOTHROP, S. K., 1061 Madison Avenue, New York City
McALLISTER, J. GILBERT, Dept. of Anthropology, University of Texas, Austin, Tex.
McCOWN, THEODORE D., Dept. of Anthropology, University of California, Berkeley, Calif.
McGREGOR, JOHN C., 304 Washington Street, Pontiac, Ill.
McKERN, W. C., Public Museum Milwaukee, Wis.
MARTIN, PAUL S., Field Museum of Natural History, Chicago, Ill.
MASON, J. ALDEN, The University Museum, Philadelphia, Pa.
MERA, H. P., Laboratory of Anthropology, Santa Fe, N.M.
MORLEY, SYLVANUS G., 10 Frisbie Place, Cambridge, Mass.
MORRIS, EARL H., P.O. Box 500, Boulder, Colo.
NESBITT, PAUL H., Beloit College, Beloit, Wis.
NOGUERA, EDUARDO, Direccion de Monumentos Pre-Hispanicos, Secretaria de Educacion Publicia, Mexico, D.F.
PARKER, ARTHUR C., Rochester Museum of Arts and Sciences, Rochester, N.Y.
RAINEY, FROELICH, American Museum of Natural History, New York, N.Y.
RICKETSON, OLIVER G., JR., 10 Frisbie Place, Cambridge, Mass.
RITCHIE, WILLIAM A., Rochester Museum of Arts and Sciences, Rochester, N.Y.
ROBERTS, FRANK H. H., JR., Bureau of American Ethnology, Washington, D.C.
ROGERS, MALCOLM J., The San Diego Museum, San Diego, Calif.
ROYS, LAWRENCE, 825-27th Street, Moline Ill.
SATTHERTHWAITE, LINTON, JR., University Museum, Philadelphia, Pa.
SAYLES, E. B., Gila Pueblo, Globe, Ariz.
SETZLER, F. M., U. S. National Museum, Washington, D.C.
SHETRONE, H. C., Ohio State Museum, Columbus, Ohio
SPIER, LESLIE, P.O. Box 880, Santa Cruz, Calif.
SPINDEN, H. J., Brooklyn Museum, Brooklyn, N.Y.
STEWARD, JULIAN H., Bureau of American Ethnology, Washington, D.C.
STRONG, WM. DUNCAN, Dept of Anthropology, Columbia University, New York City

TOZZER, ALFRED M., 7 Bryant Street, Cambridge, Mass.
VAN ROYEN, WM., Brooklyn College, Bedford Avenue and Avenue H, Brooklyn, N.Y.
WARDLE, H. NEWELL, Sharon Hill, Pa.
WEBB, WM. S., University of Kentucky, Lexington, Ky.
WEDEL, WALDO R., U. S. National Museum, Washington, D.C.
WINTEMBERG, W. J., National Museum of Canada, Ottawa, Ontario, Canada

AFFILIATES

ADAIR, W. G., 3823 Glenway Avenue, Cincinnati, Ohio
ADAMS, ROBERT McCORMICK, 40 Summit Street, Webster Groves, Mo.
ADLER, STUART W., 221 West Central Avenue, Albuquerque, N.M.
ADOLPH, HENRY F., 69 South Franklin Street, Wilkes-Barre, Pa.
ALDRICH, FRANK W., 1506 East Washington Street, Bloomington, Ill.
ALDRICH, RICHARD, 308 South State Street, Ann Arbor, Mich.
ALDRIDGE, C. CLAY, 245 Valley Road, Montclair, N.J.
ALEXANDER, H. G., University of New Mexico, Albuquerque, N.M.
ALLEN, GEORGE X., 202 Raymond Avenue, Bay City, Mich.
ALLEN, HUGH S., 2307 Cedar Street, Bakersfield, Calif.
ALLYN, HARRIETT M., Mount Holyoke College, South Hadley, Mass.
ALTICK, ARTHUR R., Clark County Historical Society, Springfield, Ohio
ANDERSON, A. E., Box 189, Brownsville, Tex.
ANDERSON, ARTHUR J. O., Eastern New Mexico College, Portales, N.M.
ANDREWS, E. WYLLYS, 10 Frisbie Place, Cambridge, Mass.
ANDREWS, ROBERT C., Box 4082, Tucson, Ariz.
ANGELINO, HENRY, 585 Hoboken Road, Carlstadt, N.J.
ANGUS, JOHN A., 119 Holmes Street, Scotia, N.Y.
ANTEVS, ERNST, The Corral, Globe, Ariz.
ANTLE, H. R., 1424 West 1st Street, Sulphur, Okla.
ARNOLD, WAYNE S., Y.M.C.A., Little Falls, N.Y.
ATKINSON, MRS. JOHN M., Fort Sheridan, Ill.
AYRS, O. L., 1001 Crescent Avenue, Birmingham, Ala.

BABBITT, J. R., 519 North Leroux Street, Flagstaff, Ariz.
BABCOCK, WILLOUGHBY M., Minnesota Historical Society, St. Paul, Minn.
BAILEY, JOHN H., Davenport Public Museum, Davenport, Iowa
BAKER, ELE M., 317 Alabama Street, Amarillo, Tex.
BAKER, WM. E., Boise City, Okla.
BARKER, LORING M., 2545 Dana Street, Berkeley, Calif.
BARNETT, H. G., Dept. of Anthropology, University of Oregon, Eugene, Ore.
BARRINGER, H. G., 240 Avenue H, Billings, Mont.
BASTO, ARTHUR E., South Woodstock, Conn.
BEALS, RALPH L., University of California, Los Angeles, Calif.
BEARD, ROLAND E., Albany, Texas
BEARDSLEY, GRETCHEN, Jones, Mich.
BEARDSLEY, RICHARD K., 473 Ramsell St., San Francisco, Calif.
BEAVER, W. H. T., 2951 Hermosita, Glendale, Calif.
BELL, ROBERT E., 531 North Main Street, Marion, Ohio
BENEWAY, ALMON B., Vassar View Road Poughkeepsie, N.Y.
BENGEL, W. H., Gatesworth Hotel, St. Louis, Mo.
BENNETT, JOHN W., Dept. of Anthropology, University of Chicago, Chicago, Ill.
BERKEBILE, FRED D., 363 West Catherine Street, Somerset, Pa.
BERNE, ALBERT, Box 458, Madeira, Ohio
BERRY, BREWTON, University of Missouri, Columbia, Mo.
BILGERY, CONRAD, Regis College, West 50th and Lowell Boulevard, Denver, Colo.
BIRDSELL, JOHN C., III, Washington and Colfax Apartments, Washington Street, South Bend, Ind.
BIRDSELL, JOSEPH B., Peabody Museum, Cambridge, Mass.
BLACKSTONE, MRS. D. L., JR., Swallow Hall, Columbia, Missouri
BLISS, WESLEY L., Dept. of Anthropology, University of Pennsylvania, Philadelphia, Pa.
BLUMENTHAL, E. H., JR., Dept. of Anthropology, University of New Mexico, Albuquerque, N. M.
BOGGS, STANLEY H., Peabody Museum, Cambridge, Mass.
BOUDEMAN, DONALD O., 234 South Burdick Street, Kalamazoo, Mich.
BOUWKNEGT, H. E., Grandville, Mich.
BOYD, MRS. WILLIAM F., Saguache, Colo.
BRAME, J. Y., 604 First National Building, Montgomery, Ala.
BRAND, DONALD D., University of New Mexico, Albuquerque, N. M.
BRANEGAN, JAMES A., 501 Gainesboro Road, Drexel Park, Drexel Hill P. O., Pa.
BRANNON, PETER A., P. O. Box 404, Montgomery, Ala.
BREW, J. O., Peabody Museum, Cambridge, Mass.
BREWER, JESSE, Cliff Street, Plymouth, Mass.
BROOKS, EDWARD, 32 Allerton Street, Brookline, Mass.
BROOKS, SEAL, 219 Magnolia Street, Kennett Square, Pa.
BROSIUS, W. L., 2349 Leslie Avenue, Detroit, Mich.
BROWN, AUGUST H., Hastings, Neb.
BROWN, JOHN C., 435 South Main Street, Woonsocket, R.I.
BROWN, RALPH D., 433 Maxwell Street, Lexington, Ky.
BROWNE, JIM, 1863 Wazee Street, Denver, Colo.
BUKER, LEON W., 2920 West Kilbourn Avenue, Milwaukee, Wis.
BULGER, HAROLD A., Barnes Hospital, 600 South Kingshighway, St. Louis, Mo.
BULL, MALCOLM F., Box 252, Canyon, Tex.
BULL, NORRIS L., 106 Hawk's Nest Beach, Old Lyme, Conn.
BULLEN, RIPLEY P., 6 Stonehedge Road, Andover, Mass.
BURGH, ROBERT, P.O. Box 500, Boulder, Colo.
BURNETT, E. K., Museum of the American Indian, Heye Foundation, New York City

CADY, JEAN, Museum of New Mexico, Santa Fe, N.M.
CAHILL, EDGAR D., Geological Dept., Skelly Oil Co., 419 Ardis Building, Shreveport, La.
CAMPBELL, MRS. ELIZABETH W. C., Twenty Nine Palms, Calif.
CAMPBELL, T. N., 1518 Preston Avenue, Austin, Tex.
CAMPBELL, WM. H., Twenty Nine Palms, Calif.
CAPPS, HUGH O., JR., 311 Lincoln Street, Huntsville, Ala.
CARLSON, GUSTAV G., Dept. of Sociology, University of Cincinnati, Cincinnati, Ohio

CARPENTER, EDMUND, 97 Middlesex Road, Rochester, N.Y.
CARPENTER, EDWIN H., 117 South Mariposa Street, Los Angeles, Calif.
CAREY, HENRY A., Museum, University of Kentucky, Lexington, Ky.
CARTER, GEORGE F., 3590-3rd Avenue, San Diego, Calif.
CHAMBERLAIN, MRS. JOSEPH P., II, Woodside, Redwood City, Calif.
CHAMBERS, MOREAU B., Belvedere Place, Clinton, Miss.
CHAMPE, JOHN L., 525 South 13th Street, Lincoln, Neb.
CHAPMAN, CARL H., Box 194, Steelville, Mo.
CHAPMAN, E. M., 1120 Green Springs Avenue, Birmingham, Ala.
CHAPMAN, KENNETH M., Laboratory of Anthropology, Santa Fe, N.M.
CHARD, CHESTER S., 1654 Massachusetts Avenue, Cambridge, Mass.
CHASE, DAVID W., 1230 South Avenue, Rochester, N.Y.
CHASE, VIRGINIUS H., 107 Park Place, Peoria Heights, Ill.
CLAFLIN, W. H., JR., 24 Milk Street, Boston, Mass.
CLARKE, LOUIS C. G., Leckhampton House, Cambridge, England
CLEMENT, ALLISON, 841 N. Tyndal Ave., Tucson, Ariz.
CLEMENTS, FORREST E., Anthropology Dept., University of Oklahoma, Norman, Okla.
COATES, JAMES R., 200 Royster Building, Norfolk, Va.
COE, JOFFRE L., University of North Carolina, P.O. Box 652, Chapel Hill, N.C.
COFFIN, CLAUDE C., P.O. Box 444, Fort Collins, Colo.
COLBURN, BURNHAM S., Biltmore Forest, Biltmore, N.C.
COLBURN, WM. B., 333 Washington Road, Grosse Pointe, Mich.
COLEMAN, LEE L., Yellowstone Park, Wyo.
COLLIER, WM. DEAN, St. Elizabeths Hospital, 1044 Belmont Avenue, Youngstown, Ohio
CONGDON, R. T., 122 South Cleveland Street, Wenatchee, Wash.
CONGDON, WM., Hopewell, Va.
CONNOLLY, FLORENCE, 503 Olympic Avenue, Bremerton, Wash.
CONNOR, SYDNEY, Girard College, Philadelphia, Pa.
COOPER, JOHN M., Catholic University of America, Washington, D.C.
COPPING, GEORGE W., 217 North Meade Avenue, Glendive, Mont.
CORNING, JOHN B., 559 E. Evergreen Avenue, Chestnut Hill, Philadelphia, Pa.
COSGROVE, MRS. HARRIET S., Peabody Museum, Cambridge, Mass.
COTTER, JOHN LAMBERT, Box 36, Clarkdale, Ariz.
COY, EDNA, 1617 Hayden Street, Amarillo, Tex.
CRESSON, FRANCIS M., JR., 126 Valley Road, Ardmore, Pa.
CRON, CYRIL M., Miami, Ariz.
CROZIER, ARCHIBALD, R.F.D. 1, Kennett Square, Pa.
CUMMING, ROBERT B., JR., c/o A. T. Hill, P.O. Box 100, State House, Lincoln, Neb.
CUMMINGS, BYRON, Whiteriver, Ariz.
CUMMINGS, MRS. MARIAN E., Round Hill, Greenwich, Conn.
CUNNINGHAM, WILBUR M., 401 Maple Street, Benton Harbor, Mich.
CUTTER, MRS. GRETCHEN, 918 Virginia Street, Apartment 3, Toledo, Ohio

DAHMS, HAROLD F., Camp TVA P1., Benton, Ky.
DALAND, ROBERT T., Milton, Wis.
DANIELS, MRS. HELEN S., Box 1468, Durango, Colo.
DANSON, EDWARD B., Kenyon Ranch, Tubac, Ariz.
DANACZKO, EDWARD A., 11 North East Street, Holyoke, Mass.
DARBY, T. J., 1712 South Boulder Street, Tulsa, Okla.
DAUGHERTY, MRS. LILLIAN, 1626 D Street, Lincoln, Neb.
DAUTERMAN, CARL C., Roosevelt Boulevard, North Caldwell, N.J.
DAVIS, DAVID O., 2528 Glen Crest Drive, Ft. Worth, Tex.
DAVIS, HARRY T., North Carolina State Museum, Raleigh, N.C.
DAVIS E. MOTT, JR., Peabody Museum, Cambridge, Mass.
DAVIS, WALTER M., 306 West Olive Street, Springfield, Mo.
DAY, H. SUMMERFIELD, 307 East Holmes Street, Huntsville, Ala.
DEJARNETTE, DAVID L., Alabama Museum of Natural History, University, Ala.
DELLINGER, S. C., University of Arkansas, Fayetteville, Ark.
DENISON, JOHN H., Jr., Big Horn, Sheridan County, Wyo.
DICKEY, MRS. PARKE A., Pleasantville, Pa.
DICKSON, DON F., Lewistown, Ill.
DICKSON, MARION H., Lewistown, Ill.
DIESING, EUGENE H., 5724 Coronado Avenue, St. Louis, Mo.
DILLEY, G. W., 2553 Paxton Avenue, Akron, Ohio
DILLINGHAM, THOMAS J., 907 South Second Street, Boonville, Indiana
DISINGER, FOSTER, 126 Front Street, Binghamton, N.Y.
DODGE, V. K., 137 Bell Court West, Lexington, Ky.
DOERSCHUK, HERBERT M., Box 505, Badin, N.C.
DORAN, ED B., JR., 113 Atkinson Hall, University, La.
DORN, DAVID R., 36 Susquehanna Ave., Coopers-town, N.Y.
DOUGLAS, FREDERIC H., 1300 Logan Street, Denver, Colo.
DOWLER, H. A., Leader, Saskatchewan, Canada
DRAKE, WM. A., 284 Hickory Avenue, Bergenfield, N.J.
DRESSER, MRS. W. CARLTON, 654-A Main Street, Melrose, Mass.
DREWS, ROBIN A., Dept. of Anthropology, University of Oregon, Eugene, Ore.
DRUCKER, PHILIP, Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
DUANE, WM. NORTH, 747 Valley Road, Montecito, Santa Barbara, Calif.
DUFFEN, WM. A., Palm Courts, Apartment No. 8, Rockport, Tex.
DUNLEVY, MARION L., Central Archaeological Laboratory, Route 1, Box 29-C, Birmingham, Ala.
DUSTIN, FRED, 705 South Fayette Street, Saginaw, W.S., Mich.
DUTTON, BERTHA P., Museum of New Mexico, Santa Fe, N.M.

EBERHARDT, HENRY J., 24 Homestead Park, Newark, N.J.
EDWARDS, H. ARDEN, 2012 La Paloma Street, Alhambra, Calif.
EGGAN, FRED, Dept. of Anthropology, University of Chicago, Chicago, Ill.
EISELEY, LOREN C., 32 West 76th Street, New York City

EKHOLM, GORDON F., 1414 Lincoln Avenue, St. Paul, Minn.
ELLIOTT, JOHN B., Florence, Ky.
ELLIS, H. Holmes, Ohio State Museum, Columbus, Ohio
ELROD, HENRY E., Petroleum Building, Houston, Tex.
ELSING, WILLARD, 1509 North Grand Street, Pittsburg, Kan.
ELY, ALBERT, Route 1, Santa Fe, N.M.
ENGELDER, CARL J., Dept. of Chemistry, University of Pittsburgh, Pittsburgh, Pa.
ENGERRAND, GEORGE C., Dept. of Anthropology, University of Texas, Austin, Tex.
ENSTAD, DEAN, 609 Shelton Street, Dallas, Ore.
ERWIN, HENRY P., 723–15th Street N.W., Washington, D.C.
EVANS, CLIFFORD, 8711 La Tuna Canyon Road, Roscoe, Calif.
EVANS, MRS. GERTRUDE S., 350 South Main Street, Freeport, N.Y.
EVER, NEOLA A., 1800 Cheyenne Road, Colorado Springs, Colo.

FAIRBANKS, CHARLES H., Ocmulgee National Monument, Macon, Ga.
FALKENBACH, CHARLES H., American Museum of Natural History, New York City
FALLON, BERNARD B., 464 East Fulton Street, Grand Rapids, Mich.
FARMER, MALCOLM F., The San Diego Museum, San Diego, Calif.
FAST, JOHN E., P.O. Box 837, Nogales, Ariz.
FAUNCE, MARCINE, 888-13th Street, Boulder, Colo.
FENENGA, FRANKLIN, 1317 Spruce Street, Berkeley, Calif.
FENTON, WM. N., Bureau of American Ethnology, Washington, D.C.
FERGUSON, ELEANOR, 847 Prospect Avenue, Hartford, Conn.
FERGUSON, MRS. ALICE L. L., 2330 California Street N.W., Washington, D.C.
FEWKES, VLADIMIR J., The University Museum, Philadelphia, Pa.
FIELD, CLARK, Field Stationery Co., Tulsa, Okla.
FIGGINS, J. D., The Britling, 343 South Broadway, Lexington, Ky.
FINKELSTEIN, J. JOE, 209 Ferris Hall, University of Tennessee, Knoxville, Tenn.
FINLEY, O. M., Eden, Wyo.
FINTER, CARLTON, Stanley, Va.
FISCHEL, HANS E., 1329 Bonita Avenue, Berkeley, Calif.
FISHER, ALTON K., 161 West Wisconsin Avenue, Milwaukee, Wis.
FISHER, HARRY M., Metropolitan Building, St. Louis, Mo.
FLEMING, MRS. THOMAS, JR., 1541 Lombardy Road, Pasadena, Calif.
FORD, LEE M., Great Falls, Mont.
FOSTER, JAMES R., Camp TVA P1., Benton, Ky.
FOX, DOUGLAS C., Room 444, Chrysler Building, New York City
FRANKE, WALTER E., 74 Church Street, North Attleboro, Mass.
FRANZ, HARVEY, 1027 Ogden Avenue, Benton Harbor, Mich.
FRASER, BERT H., P. O. Box 1002, Laredo, Tex.
FRASER, DOROTHY E., 57 South Avenue, Brockport, N.Y.
FRASIER, R. C., 11 Newton Street, Dunkirk, N.Y.
FRENCH, W. C., 1018 West Street, Grinnell, Iowa
FULTON, WM. SHIRLEY, Waterbury, Conn.
FUNKHOUSER, W. D., University of Kentucky, Lexington, Ky.

GABEL, NORMAN E., 4123 University Station Tucson, Ariz.
GARTH, THOMAS R., 209 North Madison Street, Walla Walla, Wash.
GATES, JOSEPH E., Finleyville, Pa.
GAVAN, JAMES A., Dept. of Anthropology, University of Chicago, Chicago, Ill.
GEBHARD, PAUL, 72 Kirkland Street, Cambridge, Mass.
GEIST, OTTO WM., University of Alaska, College, Alaska
GEORGE, W. H., c/o Huron Production Credit Ass'n, Huron, S.D.
GESSNER, GEORGE N., 11 Adams Street, Dansville, N.Y.
GETTY, HARRY T., Arizona State Museum, Tucson, Ariz.
GETTY, MARTHA LEE, Little Silver, N.J.
GIFFORD, STANLEY, 931 Westcott Street, Syracuse, N.Y.
GILKYSON, MRS. PHOEBE H., Mont Clare, Montgomery County, Pa.
GILLIN, JOHN P., Dept. of Anthropology, Yale University, New Haven, Conn.
GILMORE, G. H., Murray, Neb.
GINNANE, E. S., 1016 Martin Building, Birmingham, Ala.
GLENN, L. C., Vanderbilt University, Nashville, Tenn.
GODDARD, CHARLES F., Mattituck, Long Island, N.Y.
GODFREY, MARIAN ANGELL, Ardmore, Pa.
GOGGIN, JOHN M., Dept. of Anthropology, University of New Mexico, Albuquerque, N.M.
GOOD, LEE, 328 North 3rd Street, Hamilton, Ohio
GOSLIN, ROBERT M., 312 Wilson Avenue, Columbus, Ohio
GREEN, AMOS R., R.R. 1, Eau Claire, Mich.
GREEN, G. G., JR., 43 North Woodland Avenue, Woodbury, N.J.
GREEN, GEORGE G., III, 43 North Woodland Avenue, Woodbury, N.J.
GREENEBAUM, MILTON L., 308 Jefferson Apartments, Saginaw, Mich.
GREYWACZ, MRS. KATHRYN B., 105 Abernathy Drive, Trenton, N.J.
GRIFFIN, JOHN W., 309 North Grandview Avenue, Daytona Beach, Fla.
GUERNSEY, E. Y., 1504 Fourteenth Street, Bedford, Ind.
GUNN, B. S., Pense, Saskatchewan, Canada

HAAG, WM. G., Dept. of Anthropology and Archaeology, University of Kentucky, Lexington, Ky.
HAASS, MRS. LILLIAN HENKEL, 189 Cloverly Road, Grosse Pointe Farms, Mich.
HAASS, WALTER F., 2939 Iroquois Avenue, Detroit, Mich.
HACKETT, MARTHA, 4939 Pasadena Avenue Terrace, Los Angeles, Calif.
HADLOCK, WENDELL S., Robert Abbe Museum, Bar Harbor, Me.
HALE, MRS. C. E., Box D, Sheffield, Pecos County, Tex.
HALL, EDWARD T., JR., Box 1617, Santa Fe, N.M.
HALL, MILTON B., 85 Grosvenor Avenue, East Providence, R.I.
HALL, WILL L., 6219 Rosebury Avenue, St. Louis, Mo.
HALLETT, LEAMAN F., 18 Davis St., Mansfield, Mass.
HALSETH, ODD S., Pueblo Grande, Phoenix, Ariz.
HAMILTON, HENRY W., Box 528, Marshall, Mo.
HARDING, CHARLES F., III, 270 Birch Road, Winnetka, Ill.
HARGRAVE, LYNDON L., Capital Annex, c/o Roy Gambrelle, State Game Dept., Phoenix, Ariz.

HARNER, JOE, 212 South Adams Street, Nevada, Mo.
HARRINGTON, J. C., Box 602, Williamsburg, Va.
HARRIS, ALFRED, II, 4 Greenwood Place, Wyncote, Pa.
HARRIS, WALTER A., 914 Georgia Casualty Building, Macon, Ga.
HARROLD, C. C., 700 Spring Street, Macon, Ga.
HART, GEORGE E., Wading River, Long Island, N.Y.
HART, JOHN R., 618 Ellis Building, Phoenix, Ariz.
HAWLEY, F. G., Box 351, Miami, Ariz.
HAYES, ALDEN, Box 208, Rockwood, Tenn.
HEIZER, ROBERT F., Dept. of Anthropology, University of Oregon, Eugene, Ore.
HELLER, CHARLES F., Star R. 1, Box 81-2, Bremerton, Wash.
HENCKEN, H. O'NEILL, Peabody Museum, Cambridge, Mass.
HENNESSEY, J. J., 116 Fulton Avenue, Poughkeepsie, N.Y.
HENRY, NORMAN E., 740 South Negley Avenue, Pittsburgh, Pa.
HERSKOVITS, M. J., Northwestern University, Evanston, Ill.
HERTZBERG, EDWARD, 333 E. Mosholm Parkway, New York, N.Y.
HEWES, GORDON W., 2225-A Dwight Way, Berkeley, Calif.
HIBBEN, FRANK C., 3000 Campus Boulevard, Albuquerque, N.M.
HILL, GERTRUDE, Flagstaff Public Library, Flagstaff, Ariz.
HILL, JAMES A., 99 Tracy Avenue, East Lynn, Mass.
HILL, W. W., Dept. of Anthropology, University of New Mexico, Albuquerque, N.M.
HINMAN, EARL E., JR., Towanda, Pa.
HINSDALE, W. B., Museum of Anthropology, Ann Arbor, Mich.
HOARD, L. H., Box 32, Beresford, S.D.
HODGES, T. L., Bismarck, Ark.
HODGES, WETMORE, Beverly Farms, Mass.
HOHENTHAL, WM. D., JR., 2360 Cedar Street, Berkeley, Calif.
HOLDEN, W. C., Tech Station, Lubbock, Tex.
HOLLENBACH, MARION, The Los Angeles Museum, Los Angeles, Calif.
HOLMES, PAUL R., 1815 Highland Place, Berkeley, Calif.
HOLMQUIST, CARL E., 441 Parkdale Avenue, Royal Oak, Mich.
HOOTON, E. A., Peabody Museum, Cambridge, Mass.
HORNBLOWER, RALPH, JR., 7 Louisburg Square, Boston, Mass.
HORNE, SAM N., 2312 Colonial Avenue, Waco, Tex.
HORTON, DONALD, 25 Lynwood Place, New Haven, Conn.
HOUSEHOLDER, J. C., 3957 College Avenue, Indianapolis, Ind.
HOWARD, LYNN E., Grove, Okla.
HOWE, BRUCE, Peabody Museum, Cambridge, Mass.
HOWE, HENRY F., North Main Street, Cohasset, Mass.
HOWE, MORTIMER C., 570 Chaucer Street, Palo Alto, Calif.
HOWELL, DAVID H., 4556 Live Oak Drive, Claremont, Calif.
HOWES, WM. J., 37 Harvard Street, Holyoke, Mass.
HOWSON, JOAN, 323 E. 52nd Street, New York City
HULBURT, MILTON F., Lock Box No. 35, Reedsburg, Wis.
HUMMEL, EDWARD A., 5836 Miami Street, Omaha, Neb.
HURST, C. T., Western State College, Gunnison, Colo.
HURT, WESLEY R., JR., 1309 East Coal Avenue, Albuquerque, N.M.
HUSCHER, HAROLD A., 2587 South Clayton Street, Denver, Colo.
HUSCHER, MRS. MABEL A., Arizona Biltmore, Phoenix, Ariz.

IRWIN, O. J., Genoa, Neb.

JACKSON, A. T., 508 East 46th Street, Austin, Tex.
JACKSON, GEORGE, R.F.D. 1, Sandy Hook, Conn.
JAKEMAN, M. WELLS, 503 Union Drive, Los Angeles, Calif.
JENNINGS, J. D., Box 428, Tupelo, Miss.
JENSEN, DOROTHY CROSS, 2222 South Broad Street, Trenton, N.J.
JERRARD, L. P., 522 Willow Avenue, Winnetka, Ill.
JOHNSON, ERNEST N., R. 2, Box 468, Concord, Calif.
JOHNSON, FREDERICK, Robert S. Peabody Foundation, Phillips Academy, Andover, Mass.
JOHNSON, LESLIE R., 712 Tuxedo Boulevard, Webster Groves, Mo.
JOHNSON, ROSCOE L., 22 Hampshire Circle, Methuen, Mass.
JOHNSTON, RUSSELL A., Helmsdale P.O., Alberta, Canada
JONES, DAVID J., Wupatki National Monument, Flagstaff, Ariz.
JONES, STANLEY J., Dept. of Geography, The University, Bristol, England
JONES, VOLNEY H., Museums Building, Ann Arbor, Mich.
JONES, WALTER B., Alabama Museum of Natural History, University, Ala.
JURY, WILFRID, University of Western Ontario, London, Ontario, Canada

KAISER, ALBERT DAVID, JR., 29 Buckingham Street, Rochester, N.Y.
KAMPERMAN, GEORGE, 79 Longfellow Avenue, Detroit, Mich.
KASTNER, A. L., 2903 West McKinley Boulevard, Milwaukee, Wis.
KAVANAUGH, CHAS. N., 190 North Upper Street, Lexington, Ky.
KEECH, ROY A., Box 1065, Santa Fe, N.M.
KEHL, ERVIN W., 809 Essex Street S.E., Minneapolis, Minn.
KEITH, MRS. E. GORDON, 613 Malvern Road, Ardmore, Pa.
KELEMAN, PAL, Norfok, Conn.
KELLEY, J. CHARLES, 406 Waggener Hall, University of Texas, Austin, Tex.
KELLY, ARTHUR, Room 7518, New Interior Dept., Washington, D.C.
KELLY, ISABEL, c/o American Consulate, Guadalajara Jalisco, Mexico
KELLY, W. H., 14877 Valley Vista Boulevard, Van Nuys, Calif.
KELLY, WM. B., R. 1, Tupelo, Miss.
KEMPTON, ROCKWELL M., 333 South Jefferson Avenue, Saginaw, Mich.
KENEFICK, JAMES H., Box 25, Dayville, Killingly, Conn.
KENT, MRS. EDWARD G., 29 Greenvillage Road, Madison, N.J.
KERCHER, ROBERT A., 2814 Victoria Avenue, Hyde Park, Cincinnati, Ohio
KEUR, MRS. DOROTHY L., 2475 Palisade Avenue, Spuyten Duyvil, New York City
KIDDER, ALFRED, II, Peabody Museum, Cambridge, Mass.
KIDDER, H. H., c/o Morgan and C.; 14 Place Vendome, Paris, France

KING, DALE S., National Park Service, Coolidge, Ariz.
KING, MILO S., Fort Ticonderoga, N.Y.
KINGMAN, MRS. EUGENE, 2727 South Rockford Road, Tulsa, Okla.
KINIETZ, W. Vernon, 1304 Iroquois Street, Ann Arbor, Mich.
KIRKLAND, FORREST, 501 Rio Grande National Building, Dallas, Tex.
KIVETT, MARVIN F., Weeping Water, Neb.
KLUCKHOHN, CLYDE, Peabody Museum, Cambridge, Mass.
KNEBERG, MADELINE, 207 Ferris Hall, University of Tennessee, Knoxville, Tenn.
KNECHTEL, FRITZ, Hanover, Ontario, Canada
KNEEBONE, THOMAS H., 1443 Atwater St., Saginaw, Mich.
KNIPE, MRS. DOROTHY A., Elgin, Ariz.
KNOWLES, N., JR., 222 Rockglen Road, Penn Wynne, Philadelphia, Pa.
KNOX, MRS. MERTICE M. C. B., Box 17, Kelvin, Ariz.
KRAXBERGER, WAYNE, Thomas Terrace, Church Street, Decatur, Ala.
KRETSCHMER, EDW. E., 5821 West Walton Street, Chicago, Ill.
KRIEGER, ALEX D., Dept. of Anthropology, University of Texas, Austin, Tex.

LANCASTER, J. A., Pleasant View, Colo.
LANGE, CHARLES H., JR., 419 North Maple Street, Albuquerque, N.M.
LANGFORD, R. R., 303 West 4th Street, North Platte, Neb.
LARUE, H. C., R. 1, Chariton, Iowa
LASSITER, WM., 174 Miramar Avenue, Santa Barbara, Calif.
LATHAM, ROY, Orient, Long Island, N.Y.
LAUGHLIN, JACK T., 314 North Alamo Street, San Antonio, Tex.
LAUGHLIN, WM. I., 1705 Court Street, Salem, Ore.
LEE, RONALD F., Branch of Historic Sites, National Park Service, Washington, D.C.
LEH, LEONARD L., 838-14th Street, Boulder, Colo.
LEHMER, DONALD J., Museum of New Mexico, Santa Fe, N.M.
LEMLEY, HARRY J., Hope, Ark.
LEVINE, ALBERT J., Snowflake, Ariz.
LEWIS, FLOYD, 410 West Henrietta Street, Gillespie, Ill.
LEWIS, KEPLER, 3006 Royal Street, Los Angeles, Calif.
LEWIS, T. M. N., University of Tennessee, Knoxville, Tenn.
LIDBERG, GEORGE A., Box 68, Camden, Tenn.
LIGHT, MRS. GEORGE P., 1012 Tombstone Canyon, Bisbee, Ariz.
LILLARD, J. B., Sacramento Junior College, Sacramento, Calif.
LILLY, ELI, 5807 Sunset Lane, Indianapolis, Ind.
LINDSLEY, GEORGE M., Co. 2775 V CCC, Mandan, N.D.
LISTER, ROBERT, University of New Mexico, Albuquerque, N.M.
LOHR, EDISON P., 1506 Cleveland Ave., Loveland, Colo.
LONGDEN, GRAFTON J., JR., RR. No. 3, Greencastle, Ind.
LONGYEAR, JOHN M., III, Peabody Museum, Cambridge, Mass.
LOPATIN, IVAN A., 5315 Marburn Street, Los Angeles, Calif.
LOVE, WM. G., Edgemoor Farm, Santee, Calif.
LOVEJOY, J. R., Mountain Lake Club, Lake Wales, Fla.
LOWIE, ROBERT H., University of California, Berkeley, Calif.
LOY, CLARK M., Loy Hardware Company, Effingham, Ill.

LUBBE, CHARLES KIMBALL, 217 Columbia Terrace, Peoria, Ill.
LUTHER, HERBERT A., 1036 Atwood Avenue, Johnston, R.I.
LYTLE, L. M., 200 East 5th Street, Jalesburg, Colo.

McBRYDE, F. WEBSTER, Dept. of Geography, Ohio State University, Columbus, Ohio
McCOWN, B. E., 3776 Goldfinch Street, San Diego, Calif.
McCREADY, DELPHINE B., 540 North Sheridan Avenue, Pittsburgh, Pa.
MacGOWAN, KENNETH, 20th Century Fox Film Corporation, Beverly Hills, Calif.
McGRAW, E. L., 713 High Street, Freeport, Pa.
MacHAFFIE, E. D., c/o State Publishing Company, Helena, Mont.
McMAHON, MRS. ALICE L., 4650 Central Street, Riverside, Calif.
McMAHON, ALPHONSE, 806 Missouri Building, St. Louis, Mo.
MacPHERSON, J. HAVARD, 349 West State Street, Trenton, N.J.
McWHIRTER, NOLAN, Box 664, Beeville, Tex.
MADEIRA, PERCY C., JR., 100 South Broad Street, Philadelphia, Pa.
MADISON, LEE, Greeley, Neb.
MADSEN, HARRY, Carpenter, S.D.
MAGRATH, W. H., 425 Waugh Street, Alliance, Ohio
MAIRS, O. L., Box 4, North Charleston, W.Va.
MALANCHUK, DENNIS, Croton Falls, N.Y.
MALCOLM, LAURIN R., 867 Muirfield Road, Los Angeles, Calif.
MALLORY, J. M., c/o L. M. Solomon, 218 Forsyth Street, Macon, Ga.
MALOUF, CARLING, 1386 Laird Avenue, Salt Lake City, Utah
MANSON, CARL, 3525 Davenport Street, N.W., Washington, D.C.
MARRS, GARLAND J., 915 East Ann Street, Ann Arbor, Mich.
MARTIN, BETTY, Hokona Hall, University of New Mexico, Albuquerque, N.M.
MARTIN, LESLIE A., 9 Chateau Apartments, Charleston, W.Va.
MARVE, WM. B., 207 East Preston Street, Baltimore, Md.
MASON, SAMUEL, JR., Darlington, Md.
MATSON, FREDERICK, JR., 4019 Museums Building, Ann Arbor, Mich.
MAXWELL, MOREAU, Southern Illinois State Normal University, Carbondale, Jll.
MAXWELL, E. S., 120 McDowell Road, Lexington, Ky.
MAY, ALAN G., P.O. Box 1069, Wenatchee, Wash.
MAYNARD, PAUL, 7301 North Bell Street, Chicago, Ill.
MAYR, THOMAS, Davidsonville, Md.
MEANS, PHILIP AINSWORTH, Pomfret, Conn.
MELEEN, ELMER, Vermillion, S.D.
MENZIES, T. P. O., City Museum, Vancouver, British Columbia, Canada
MERRILL, ROBERT H., 317 East Fulton Street, Grand Rapids, Mich.
METCALF, GEORGE, Wauneta, Neb.
MEYER, RICHARD K., 3940 Prospect Street, Peoria, Ill.
MICHELL, FRED J., Stony Beach, Saskatchewan, Canada
MIKUS, JOHN H., Calliham, McMullen County, Tex.
MILFORD, STANLEY J., State Museum, Santa Fe, N.M.
MILLER, A. A., 1910-7th Avenue, Scottsbluff, Neb.
MILLER, CARL F., Benton, Ky.
MILLER, P. SCHUYLER, 302 South Ten Broeck Street, Scotia, N.Y.

MILLIGAN, EDWARD A., Michigan, N.D.
MINER, HORACE, 114 Waller Avenue, Lexington, Ky.
MITCHELL, MRS. CHARLES M., 123 North Sixth Street, Monroe, La.
MONTGOMERY, ROSS G., 3828 Amesbury Road, Los Angeles, Calif.
MOORE, BARBARA, The Peppers, Redlands, Calif.
MORGAN, FRED J., 1233 Lincoln Avenue, Pasadena, Calif.
MORGAN, RICHARD, Ohio State Museum, Columbus, Ohio
MORROW, W. B., Box 11, Las Cruces, N.M.
MORSS, NOEL, 568 South Street, Needham, Mass.
MOTZ, J. C. FISHER, Pond Street, Holbrook, Mass.
MULL, R. G., Dighton, Kan.
MULLER, VALENTINE K., Bryn Mawr College, Bryn Mawr, Pa.
MUNGER, PAUL F., Box 183, Crystal City, Mo.
MURBARGER, WILBUR B., Washington, Calif.
MURRA, JOHN V., Dept. of Anthropology, University of Chicago, Chicago, Ill.
MURRAY, R. C., 805 Maple Street, Quincy, Ill.

NASH, CHARLES H., West Strong Hall, University of Tennessee, Knoxville, Tenn.
NASH, PHILLEO, Dept. of Anthropology, University of Toronto, Toronto, Ontario, Canada
NELSON, H. R., R. 4, Box 525, Independence, Mo.
NELSON, JOHN, 240 Burlington Avenue, Billings, Mont.
NEUMANN, GEORG K., 1011 Rose Avenue, Ann Arbor, Mich.
NEVILLE, KEITH, Box 336, North Platte, Neb.
NEWCOMB, F. E., 806 Gist Avenue, Silver Spring, Md.
NEWMAN, M. T., 452 Broadway, Cambridge, Mass.
NICHOLS, MRS. E. T., III, Route 5, Box 391-B, Tucson, Ariz.
NOBLE, THOMAS B., JR., 1008 Hume Mansur Building, Indianapolis, Ind.
NOE, CHARLES F., Amana, Iowa.
NOYES, E. N., 313 Furman Building, Corpus Christi, Tex.
NUNN, WARNE H., Route 4, Box 327, Salem, Ore.
NUSBAUM, J. L., Regional Headquarters, National Park Service, Santa Fe, N.M.

OKKELBERG, PETER, 1220 Fair Oaks Street, Ann Arbor, Mich.
OLES, FLOYD, 309 Exchange Building, Seattle, Wash.
OLMSTED, JULIAN, 403 South Oleander Street, Pecos, Tex.
OLSON, RONALD L., Dept. of Anthropology, University of California, Berkeley, Calif.
ORCHARD, FREDERICK P., Peabody Museum, Cambridge, Mass.
ORR, ELLISON, Waukon, Iowa
ORR, KENNETH G., 922 South 24th Street, Fort Smith, Ark.
OSGOOD, CORNELIUS B., Peabody Museum, New Haven, Conn.
OVER, W. H., University of South Dakota Museum, Vermillion, S.D.

PALMATARY, HELEN C., Apartment 20, Arrott Arms, Frankford, Philadelphia, Pa.
PARK, WILLARD Z., Dept. of Anthropology and Sociology, University of Oklahoma, Norman, Okla.
PARKS, CHARLIE M., Route 3, Plain View, Tex.
PARSONS, MRS. ELSIE CLEWS, Harrison, N.Y.
PASCO, GEORGE, Ripon, Wis.
PAYNE, FRANK A., 1344 California Avenue, Klamath Falls, Ore.
PEACOCK, CHARLES K., 107 East 8th Street, Chattanooga, Tenn.
PEARSALL, LEIGH M., 30 East Broad Street, Westfield, N.J.
PEAVY, JOHN, Tonto National Monument, Roosevelt, Ariz.
PECK, STUART, 139 Harvard Avenue, Claremont, Calif.
PELL, S. H., Fort Ticonderoga Museum, Fort Ticonderoga, N.Y.
PENNELL, FRANK C., 321 Forest Drive, Kokomo, Ind.
PENNYPACKER, SAMUEL W., II, Pennypackers Mills, Schwenksville, Pa.
PERRY, WALTER J., 1933 Hill Street, Bend, Ore.
PETERSON, VIRGIL, 3605 Hueco Street, El Paso, Tex.
PETIT, GEORGE, 2702 North 12th Street, Terre Haute, Ind.
PETRIE, J. W., 68 Eldredge Street, Mt. Clemens, Mich.
PFIRMAN, KENNETH R., 347 East 17th Street, Erie, Pa.
PHILLIPS, PHILIP, Peabody Museum, Cambridge, Mass.
PIPKIN, HERMAN C., 2006 Polk Street, Amarillo, Tex.
PLEASANTS, FREDERICK R., Peabody Museum, Cambridge, Mass.
POLLOCK, H. E. D., 10 Frisbie Place, Cambridge, Mass.
POOLE, JAMES, JR., 248 Bassett Avenue, Lexington, Ky.
POOLER, MRS. F. C., 115 South 14th Street, Albuquerque, N.M.
POST, CHESTER C., 1915 Ashby Avenue, Berkeley, Calif.
PRATT, LESLIE, 3915 Olive Avenue, Long Beach, Calif.
PRAUS, ALEXIS A., 1176 Chapel Street, New Haven, Conn.
PRETZAT, HERBERT, 140-24 14th Ave., Whitestone, N.Y.
PRICE, WINSTON H., Hardy House, Phillips Academy, Andover, Mass.
PRINGLE, P. M., 31 Keystone Avenue, Toronto, Ontario, Canada
PROCTOR, HUGH W., Box 267, Coachella, Calif.
PROFFITT, HARRY, P.O. Box 147, Hastings, Neb.
PROSKOURIAKOFF, TATIANA, 10 Frisbie Place, Cambridge, Mass.
PROVINSE, S. M., Red Lodge, Mont.
PRUITT, J. J., 4340 South Park Avenue, Tacoma, Wash.

QUIMBY, GEORGE I., JR., Louisiana State Archaeological Survey, Louisiana State University, University, La.
QUINLAN, JOSEPH J., 15 Clay Street, Dansville, N.Y.

RACER, F. H., Box 457, Lomita, Calif.
RADDIN, FREDERICK, Kings Highway Box 62, Orleans, Mass.
RAY, CYRUS N., Box 62, Abilene, Tex.
RAYNOR, DOROTHY E., Box 57 Montauk Highway, Eastport, N.Y.
REED, ALFRED, JR., Grove, Okla.
REED, ERIK K., P.O. Box 461, Santa Fe, N.M.
REEDER, A. O., White Bluff, Tenn.
REESE, RACHEL, 700 Oakwood Boulevard, Chicago, Ill.
REEVES, DACHE M., Langley Field, Va.
REICHARD, D. L., P.O. Box 373, Waynesboro, Pa.
REITER, PAUL, 2456 Hilgard Ave., Berkeley, Calif.
RETZEK, HENRY, c/o St. Alexius Church, West Union, Minn.

REYNOLDS, MARY I., 1140–1141 Jefferson Building, Peoria, Ill.
RIGHTS, DOUGLAS L., Box 133 Salem Station, Winston-Salem, N.C.
RINALDO, JOHN B., 829 North Wheaton Avenue, Wheaton, Ill.
RISINGER, M. E., Box 435, Huron, S.D.
ROBBINS, MAURICE, 25 Payson Street, Attleboro, Mass.
ROBERTS, HELEN H., Tryon, N.C.
ROBERTS, TRAVIS, Marathon, Tex.
ROOP, W. P., P.O. Box 508, Woodbury, N.J.
ROOT, W. C., 80 Federal Street, Brunswick, Me.
ROSE, D. K., 3720 Washington Avenue, St. Louis, Mo.
ROUSE, IRVING, Peabody Museum, New Haven, Conn.
ROUSH, J. FRED, Statue of Liberty National Monument, Bedloes Island, New York City
ROWE, CHANDLER, W., Dept. of Anthropology, University of Chicago, Chicago, Ill.
ROWE, JOHN H., 74 Perkins Hall, Cambridge, Mass.
ROWE, PAUL, Route 1, Glenwood, Iowa
ROYS, C. S., School of Electrical Engineering, Purdue University, West Lafayette, Ind.
ROYS, RALPH, 1512 Olin Place, Seattle, Wash.
RUDULPH, CHARLES M., 1200 South 20th Street, Birmingham, Ala.
RUPPERT, KARL, 10 Frisbie Place, Cambridge, Mass.
RUSHTON, MRS. MARY FAY, 807 East 30th Street, Austin, Tex.
RUSTE, L. GERHARD, Montrose, S.D.

SAWDERS, JAMES C., 44 Colonial Terrace, Nutley, N.J.
SCANLAN, MARY I., Dept. of Anthropology, University of New Mexico, Albuquerque, N.M.
SCANTLING, FREDERICK H., P.O. Box 4704, University Station, Tucson, Ariz.
SCHAEFER, C. E., Pennsylvania Historical Commission, Education Building, Harrisburg, Pa.
SCHEFFER, VINCENT, R.D. No. 3, Schermerhorn Road, Schenectady, N.Y.
SCHAPS, MRS. H. T., Big Canyon River Ranch, Sparks, Nev.
SCHMIDT, PAUL H., Suite 703, Old National Bank Building, Evansville, Ind.
SCHMITT, KARL, JR., 1081 Lambert Road, West Englewood, N.J.
SCHOENBECK, GEORGE, 821 Heading Avenue, Peoria, Ill.
SCHREINER, MATT, 2812-119th Street, College Point, N.Y.
SCHROEDER, ALBERT H., The State Museum, Tucson, Ariz.
SCHULTZ, C. BERTRAND, Nebraska State Museum, University of Nebraska, Lincoln, Neb.
SCOGGIN, CHARLES R., P.O. Box 66, Julesburg, Colo.
SCOTT, DONALD, Peabody Museum, Cambridge, Mass.
SEAGER, O. A., 623 Rosser Street West, Bismarck, N.D.
SENTER, DONOVAN, Dept. of Anthropology, University of Chicago, Chicago, Ill.
SEWELL, J. H., 1204 Coy Avenue, Saskatoon, Saskatchewan, Canada
SHAW, W. C., 1501 Library Avenue, McKeesport, Pa.
SHEPARD, ANNA O., 751-11th Street, Boulder, Colo.
SHERMAN, THEODORE H., 29 West Street, Fair Haven, Vt.
SHIPPEE, JAMES M., R.F.D. No. 8, North Kansas City, Mo.
SHURROCKS, ALFRED R., 16 Vestal Street, Nantucket, Mass.
SHURROCKS, MRS. ALICE A., 16 Vestal Street, Nantucket, Mass.
SIO, ARNOLD A., Dept. of Anthropology, Beloit College, Beloit, Wis.
SKARLAND, IVAR, University of Alaska, College, Alaska
SKINNER, H. ALAN, Medical School, London, Ontario, Canada
SLEIGHT, FREDERICK W., Arizona State Museum, Tucson, Ariz.
SLOCUM, H. JERMAIN, 22 Lamball Street, Charleston, S.C.
SMITH, A. LEDYARD, 10 Frisbie Place, Cambridge, Mass.
SMITH, BENJAMIN L., 64 Sudbury Road, Concord, Mass.
SMITH, C. E., JR., 6646 Indiana Avenue, Riverside, Calif.
SMITH, CARLYLE S., 114 Susquehanna Avenue, Great Neck, N.Y.
SMITH, ELMER R., University of Utah, Salt Lake City, Utah
SMITH, FREDERICK S., 5640 Guilford Avenue, Indianapolis, Ind.
SMITH, G. HUBERT, 5521 Kimbark Avenue, Chicago, Ill.
SMITH, HARRIET M., Illinois State Museum, Springfield, Ill.
SMITH, MILDRED C., 502 Cleveland Avenue, Boulder, Colo.
SMITH, R. E., 10 Frisbie Place, Cambridge, Mass.
SMITH, VICTOR J., Box 656, Alpine, Tex.
SMITH, WATSON, 18 E. Fourth Street, Cincinnati, Ohio
SNODGRASSE, RICHARD, Dept. of Anthropology, University of Chicago, Chicago, Ill.
SNOW, CHARLES E., 4311 Court S, Central Park, Birmingham, Ala.
SOLECKI, RALPH, 61–41 56th Avenue, Maspeth, N.Y.
SPAULDING, ALBERT C., Dept. of Anthropology, Columbia University, New York City
SPEARS, JOSEPH F., National Park Service, TVA-P1, Benton, Ky.
SPECK, FRANK G., University of Pennsylvania, Philadelphia, Pa.
SPEIGHT, GLENN, West Branch, Iowa
SPENCER, ROBERT F., 4704 Fulton St., San Francisco, Calif.
SPETNAGEL, A. C., Spetnagel Hardware Company, Chillicothe, Ohio
SPOEHR, ALEXANDER, Field Museum of Natural History, Chicago, Ill.
SPOONER, HARRY L., 812 Bigelow Street, Peoria, Ill.
SPROWLS, MRS. MARY V., 327 Manor Avenue, Cranford, N.J.
STACK, GUY, 5001 Nevada Avenue, Nashville, Tenn.
STAFFORD, CORA E., 5353 Teachers College Station, Denton, Tex.
STEARNS, RICHARD E., 3412 Devonshire Drive, Baltimore, Md.
STEEN, CHARLES R., Casa Grande National Monument, Coolidge, Ariz.
STELLE, OMAR P., 1694 Jefferson Street, Muskegon, Mich.
STEPHENS, B. W., 815 Broadway, Quincy, Ill.
STEPHENSON, ROBERT L., 331 East Market Street, San Antonio, Tex.
STERN, TED, 3803 Spruce Street, Philadelphia, Pa.
STEVENS AND BROWN LTD., New Ruskin House, Little Russell Street, London W.C. 1, England
STEWART, KENNETH M., 353 Geary Street, San Francisco, Calif.
STEWART, OMER C., Dept. of Anthropology, University of California, Berkeley, Calif.
STEWART, T. B., Lock Haven, Pa.

STILES, N. L., Cherokee, Iowa
STIRLING, M. W., Bureau of American Ethnology, Washington, D.C.
STONE, CLAUDE U., 540 Linn Street, Peoria, Ill.
STONE, DORIS Z., 1331 Philip Street, New Orleans, La.
STONER, VICTOR R., Greenway Station, Tucson, Ariz.
STOUT, DAVID B., R.R. No. 2, Edgerton, Wis.
STRAIGHT, DAVID M., Harwood Road, East Greenwich, R.I.
STRANDT, HERMAN F., 1025 East Broadway, Anaheim, Calif.
STROEBEL, RALPH W., 117 Storch Street, Saginaw, Mich.
STUBBS, STANLEY, Laboratory of Anthropology, Santa Fe, N.M.
STUDER, FLOYD V., 637 Amarillo Building, Amarillo, Tex.
STURDY, HENRY FRANCIS, 85 Shipwright Street, Annapolis, Md.
SWANTON, JOHN R., Smithsonian Institution, Washington, D.C.
SWART, JOHN A., Hoffmans, New York
SWEET, SIDNEY R., Bridgeport, Neb.
SWIENTOCHOWSKI, JOHN, 718 Pine Street, Wilmington, Del.

TAYLOR, BOYD, 338 Hodge Street, Newport, Ky.
TAYLOR, WALTER W., JR., Peabody Museum, Cambridge, Mass.
THACKREY, JOHN E., Bushton, Kan.
THOMAS, J. E., Warner Place, Nashville, Tenn.
THOMAS, W. JULIAN, 72 Marietta Street N.W., Atlanta, Ga.
THOMPSON, NANCY, 80 Buckingham Street, Cambridge, Mass.
THOMPSON, J. ERIC S., Harvard, Massachusetts
THOMPSON, RAYMOND, Judith Gap, Mont.
THROOP, GEORGE R., Washington University, St. Louis, Mo.
TITTERINGTON, P. F., 212 Metropolitan Building, St. Louis, Mo.
TOMLINSON, E. P., Box 134, Fort Collins, Colo.
TORREY, HOWARD, 247 Summer Avenue, Reading, Mass.
TOULOUSE, MRS. JOSEPH H., Gran Quivira National Monument, Gran Quivira, N.M.
TOURTELOT, H. A., 2627 4th Avenue, Scottsbluff, Neb.
TOWLE, MRS. MARGARET A., 3 Concord Avenue, Cambridge, Mass.
TREGANZA, ADAN E., Box 104, Lemon Grove, Calif.
TROWBRIDGE, H. M., Route 1, Bethel, Kan.
TRYON, GEORGE, 715 West 3rd Street, Anaconda, Mont.
TSCHOPIK, HARRY, JR., Peabody Museum, Cambridge, Mass.
TUCKER, SARA JONES, c/o W. B. Tucker, 950 East 59th Street, Chicago, Ill.
TYZZER, ERNEST E., Harvard Medical School, 25 Shattuck Street, Boston, Mass.

UECK, LOUIS P., 957 Columbus Avenue, Benton Harbor, Mich.
ULRICK, FRED, Galena, Kan.
UNDERWOOD, MRS. ROBERT S., 406 North Loudoun Street, Winchester, Va.

VALCARCEL, LUIS E., Museo Nacional de Lima, Lima, Peru, South America
VALDEZ, G., ROBERTO, Calle de la Republica de Argentina Numero 17, Mexico
VAN VOORHIS, F. L., Alta, Iowa
VIGFUSSON, V. A., Dept. of Chemistry, University of Saskatchewan, Saskatoon, Saskatchewan, Canada
VOEGELIN, C. F., Dept. of Anthropology, De Pauw University, Greencastle, Ind.
VON SCHLICHTEN, HAROLD C., 2705 Eden Avenue, Cincinnati, Ohio

WALKER, EDWIN F., The Southwest Museum, Los Angeles, Calif.
WALKER, WENDELL C., General Delivery, Rockwood, Tenn.
WALKER, WINSLOW M., 426 E. Chicago Avenue, Hinsdale, Ill.
WALSER, PAUL H., Box 270, College Station, Tex.
WARNOCK, C. O., 4324 Park Avenue, Indianapolis, Ind.
WATSON, M. M., Valdez, Colo.
WATSON, MRS. SHIRLEY J., Box 725, Lovington, N.M.
WATT, FRANK H., Box 1176, Waco, Tex.
WAUCHOPE, ROBERT, Village Apartments, Chapel Hill, N.C.
WEBB, C. H., 1560 Line Avenue, Shreveport, La.
WECKLER, JOE, c/o Mrs. E. E. Hungerford, 2523 New Street, Blue Island, Ill.
WEER, PAUL, 1808 North Delaware Street, Indianapolis, Ind.
WEHRLE, A. T., 24 Seventh Street, Newark, Ohio
WEIANT, C. W., 55 West 42nd Street, New York City
WELLMAN, PAUL I., 440 West 63rd Street, Kansas City, Mo.
WESLAGER, C. A., 23 Champlain Avenue, Wilmington, Del.
WHEAT, JOE BEN, Van Horn, Tex.
WHEELER, S. M., P.O. Box 349, Carson City, Nev.
WHITEFORD, ANDREW, Dept. of Anthropology, University of Tennessee, Knoxville, Tenn.
WHITING, ALFRED H., Dept. of Anthropology, University of Chicago, Chicago, Ill.
WHITTEN, MRS. W. E., Saguache, Colo.
WIESE, CHARLES W., JR., 813 Hermansau Avenue, Saginaw, Mich.
WILDER, CARLETON S., Dept. of Anthropology, University of Arizona, Tucson, Ariz.
WILDER, CHARLES G., Camp TVA P1, Benton, Ky.
WILFORD, LLOYD A., Dept. of Anthropology, University of Minnesota, Minneapolis, Minn.
WILL, GEORGE F., 322 Fourth Avenue, Bismarck, N.D.
WILLEY, GORDON R., Dept. of Anthropology, Columbia University, New York City
WILLIS, ROGER W., Dept. of Anthropology, University of Chicago, Chicago, Ill.
WILLOUGHBY, C. C., Peabody Museum, Cambridge, Mass.
WILSON, M. L., 14 Rosemary Street, Chevy Chase, Md.
WIMBERLY, STEVE, 2019 Clarendon Avenue, Bessemer, Ala.
WISSLER, CLARK, 15 West 77th Street, New York City
WITTE, A. H., Henrietta, Tex.
WOODBURY, RICHARD B., 1801 Hoban Road, N.W., Washington, D.C.
WOODWARD, ARTHUR H., The Los Angeles Museum, Los Angeles, Calif.
WORMAN, EUGENE C., JR., 39 Hammond Street, Cambridge, Mass.
WORMINGTON, MARIE, Colorado Museum of Natural History, City Park, Denver, Colo.
WRAY, CHARLES F., West Rush, N.Y.
WRAY, DONALD E., 604 Caroline Street, Peoria, Ill.
WRENCH, J. E., University of Missouri, Columbia, Mo.
WRIGHT, ROSS PIER, 235 West 6th Street, Erie, Pa.
WYMAN, LEIGH, 817 Security Building, St. Louis, Mo.

ZIMMERMAN, EDWARD, 38 West School Street, Bonne Terre, Mo.

INSTITUTIONAL MEMBERS

AMERICAN ANTIQUARIAN SOCIETY, Worcester, Mass.
AMERICAN MUSEUM OF NATURAL HISTORY, 77th Street and Central Park West, New York City
AMHERST COLLEGE LIBRARY, Amherst, Mass.
ARIZONA PIONEERS HISTORICAL SOCIETY, Tucson, Ariz.

BIBLIOTEKA, Akademii Nauk, Birgevaya Lini Ja 1, Leningrad, USSR.
BROOKLYN MUSEUM LIBRARY, Brooklyn, N.Y.
BROOKLYN PUBLIC LIBRARY, REFERENCE DEPT., 197 Montague Street, Brooklyn, N.Y.
BRYN MAWR COLLEGE LIBRARY, Bryn Mawr, Pa.
BUREAU OF AMERICAN ETHNOLOGY LIBRARY, Smithsonian Institution, Washington, D.C.
BUREAU OF GEOLOGY AND TOPOGRAPHY LIBRARY, Dept. of Mines and Resources, Ottawa, Ontario, Canada

CANON CITY PUBLIC LIBRARY, Canon City, Colo.
CINCINNATI ART MUSEUM LIBRARY, Eden Park, Cincinnati, Ohio
CLARK UNIVERSITY LIBRARY, Worcester, Mass.
CLEVELAND PUBLIC LIBRARY, 325 Superior Avenue N.E., Cleveland, Ohio
COLORADO COLLEGE, Colorado Springs, Colo.
COLUMBIA UNIVERSITY LIBRARY, New York City
CONNECTICUT STATE LIBRARY, Hartford, Conn.

DEPT. OF LIBRARY AND ARCHIVES, State House, Phoenix, Ariz.
DETROIT PUBLIC LIBRARY, Detroit, Mich.
DURANGO PUBLIC LIBRARY, Durango, Colo.

FIELD MUSEUM OF NATURAL HISTORY LIBRARY, Chicago, Ill.
FREE LIBRARY OF PHILADELPHIA, Periodical Department, Middle City District, Philadelphia, Pa.

HEARD MUSEUM, 22 East Monte Vista Road, Phoenix, Ariz.

INDIANA STATE LIBRARY, Indianapolis, Ind.
INDIANA UNIVERSITY LIBRARY, Bloomington, Ind.
INDIANAPOLIS PUBLIC LIBRARY, READING ROOM DEPT., St. Clair Square, Indianapolis, Ind.

LABORATORY OF ANTHROPOLOGY, INC., Santa Fe, N.M.
LOS ANGELES MUSEUM, Exposition Park, Los Angeles, Calif.
LOUISIANA STATE UNIVERSITY LIBRARY, University, La.

MASSACHUSETTS STATE LIBRARY, 341 State House, Boston, Mass.
MESA VERDE MUSEUM LIBRARY, Mancos, Colo.
MILWAUKEE PUBLIC MUSEUM, Milwaukee, Wis.
MINNESOTA HISTORICAL SOCIETY, St. Paul, Minn.
MONTANA STATE UNIVERSITY LIBRARY, Missoula, Mont.
MUSEUM OF THE AMERICAN INDIAN HEYE FOUNDATION, Broadway and 155th Street, New York City
MUSEUM OF NEW MEXICO, Santa Fe, N.M.

NATIONAL PARK SERVICE, BRANCH OF HISTORIC SITES, Room 7514, Interior Building, Washington, D.C.
NEVADA STATE PARK COMMISSION, Dept. of Highways, Carson City, Nev.
NEWARK FREE PUBLIC LIBRARY, 5 Washington Street, Newark, N.J.
NEWBERRY LIBRARY, 60 West Walton Place, Chicago, Ill.
NEW JERSEY STATE MUSEUM, State House Annex, Trenton, N.J.
NEW YORK PUBLIC LIBRARY, Fifth Avenue and 42nd Street, New York City
NORTHWESTERN UNIVERSITY LIBRARY, Evanston, Ill.

OHIO STATE ARCHAEOLOGICAL AND HISTORICAL SOCIETY LIBRARY, Ohio State Museum, Columbus, Ohio

PEABODY MUSEUM, Salem, Mass.
PEABODY MUSEUM LIBRARY, Yale University, New Haven, Conn.
PUBLIC LIBRARY OF FORT WAYNE AND ALLEN CO., Fort Wayne, Ind.

REEDSBURG PUBLIC LIBRARY, Reedsburg, Wis.
ROBERT S. PEABODY FOUNDATION Phillips Academy, Andover, Mass.
ROYAL ONTARIO MUSEUM OF ARCHAEOLOGY, Toronto, Ontario, Canada

ST. LOUIS PUBLIC LIBRARY, Olive, 13th and 14th Streets, St. Louis, Mo.
ST. MARY'S SEMINARY LIBRARY, Roland Park, Baltimore, Md.
SANDIA SCHOOL, Albuquerque, N.M.
SANTA BARBARA FREE PUBLIC LIBRARY, Santa Barbara, Calif.
SANTA BARBARA MUSEUM OF NATURAL HISTORY, Santa Barbara, Calif.
SCIENCE SERVICE, INC., 2101 Constitution Avenue, Washington, D.C.
SOUTHWESTERN MONUMENTS, Coolidge, Ariz.
STATE COLLEGE OF WASHINGTON LIBRARY, Pullman, Wash.
STATE UNIVERSITY OF IOWA, Library Annex, Iowa City, Iowa

TAYLOR MUSEUM FOR SOUTHWESTERN STUDIES, West Dale Street, Colorado Springs, Colo.
TEXAS TECHNOLOGICAL COLLEGE LIBRARY, Lubbock, Tex.
TULANE UNIVERSITY, DEPT. OF MIDDLE AMERICAN RESEARCH, New Orleans, La.
TULSA PUBLIC LIBRARY, ADULT REFERENCE DEPT., Tulsa, Okla.

UNIVERSITY OF ALASKA LIBRARY, College, Alaska
UNIVERSITY OF ARIZONA LIBRARY, Tucson, Ariz.
UNIVERSITY OF ARKANSAS LIBRARY, Fayetteville, Ark.
UNIVERSITY OF CALIFORNIA LIBRARY, Berkeley, Calif.
UNIVERSITY OF CALIFORNIA AT LOS ANGELES, LIBRARY, Los Angeles, Calif.

UNIVERSITY OF CHICAGO LIBRARY, Periodical Dept., Chicago, Ill.
UNIVERSITY OF CINCINNATI GENERAL LIBRARY, Cincinnati, Ohio
UNIVERSITY OF COLORADO LIBRARY, Boulder, Colo.
UNIVERSITY OF DENVER MARY REED LIBRARY, University Park, Denver, Colo.
UNIVERSITY OF ILLINOIS LIBRARY, Urbana, Illinois.
UNIVERSITY OF KANSAS LIBRARY, Lawrence, Kan.
UNIVERSITY OF KENTUCKY LIBRARY DEPT., Lexington, Ky.
UNIVERSITY OF MICHIGAN GENERAL LIBRARY, Ann Arbor, Mich.
UNIVERSITY OF MINNESOTA LIBRARY, Minneapolis, Minn.
UNIVERSITY OF MISSOURI GENERAL LIBRARY, Columbia, Mo.
UNIVERSITY OF NEBRASKA LIBRARY, Lincoln, Neb.
UNIVERSITY OF NEW MEXICO LIBRARY, Albuquerque, N.M.
UNIVERSITY OF NORTH CAROLINA LIBRARY, Chapel Hill, N.C.
UNIVERSITY OF NOTRE DAME LIBRARY, Notre Dame, Ind.
UNIVERSITY OF OKLAHOMA LIBRARY, Norman, Okla.
UNIVERSITY OF OREGON LIBRARY, Eugene, Ore.
UNIVERSITY MUSEUM, UNIVERSITY OF PENNSYLVANIA, Philadelphia, Pa.
UNIVERSITY OF SOUTHERN CALIFORNIA LIBRARY, University Park, Los Angeles, Calif.
UNIVERSITY OF TEXAS LIBRARY, Austin, Tex.
UNIVERSITY OF UTAH LIBRARY, Salt Lake City, Utah
UNIVERSITY OF WASHINGTON LIBRARY, Seattle, Wash.
UNIVERSITY OF WISCONSIN LIBRARY, Madison, Wis.

VAN EPPS-HARTLEY CHAPTER, New York State Archaeological Association, 13 Union Street, Schenectady, N.Y.
VASSAR COLLEGE LIBRARY, Poughkeepsie, N.Y.

WASHINGTON UNIVERSITY LIBRARY, St. Louis, Mo.
WESTERN STATE COLLEGE, Gunnison, Colo.

YALE UNIVERSITY LIBRARY, New Haven, Conn.

INDEX OF VOLUME VI

ADAMS, ROBERT MCCORMICK, Diagnostic Flint Points, 72.
Alabama: news of, 275, 352.
Alaska: Petroglyphs of Southeastern Alaska, 123; news of, 174, 272.
AMSDEN, CHARLES AVERY, Obituary, 349.
Antiquity of Man in the New World, 203.
ANTLE, H. R., Comment on an Oklahoma Pictograph, 166.
Archaeology: Archaeological Frauds from Colorado, 173; Archaeological Notes on a Midden at Point Sal, 214.
Arctic Area: news of, 174, 272.
Arizona: news of, 86, 175, 176, 283, 358.
Arkansas: Possible Antecedents of the Middle Mississippian Ceramic Complex in Northeastern Arkansas, 133.

BALDWIN, GORDON C., review, The Jemez Pueblo of Unshagi, 93.
Barbed Bone Projectile Point from Utah, 170.
BENNETT, WENDELL C., review, Tapajo Pottery, 298.
Beveled Artifacts in Florida of the Same Type as Artifacts Found near Clovis, New Mexico, 314.
BEYER, HERMANN, A Discussion of J. Eric Thompson's Interpretations of Chichen Itza Hieroglyphs, 327.
Bibliography: California, 226; Early Man in America, 200, 212, 248, 303, 346; Maya, 325, 338; Middle America, 104, 199, 303, 384; Minnesota, 248; Peru, 262; Pottery, 173; South America, 104, 200, 303, 384; Southwestern Area, 122, 229.
BLISS, WESLEY L., Sandia Cave, 77.
BYERS, DOUGLAS S., review, The Jones Pond Shell Heap, 183.

California: Archaeological Notes on a Midden at Point Sal, 214; news of, 175, 284; Serrated Points of Central California, 167.
Canada: news of, 272; Two Post-Nipissing Sites near Killarney, Ontario, 305.
CARTER, GEORGE F., Archaeological Notes on a Midden at Point Sal, 214.
CASTETTER, E. F., review, Ethnobotany of the Hopi, 288.
Classification, statistical, 29.
Clearing House for Southwestern Museums, 86.
Colorado: Archaeological Frauds from Colorado, 173; news of, 85, 176, 282, 357.
Committee on Archaeological Terminology, 350.
Connecticut: news of, 274.
CRESSMAN, L. S. and W. S. LAUGHLIN, A Probable Association of Mammoth and Artifacts in the Willamette Valley, Oregon, 339.
Culture: Diagnostic Flint Points, 72; Manitunik Eskimo Culture of East Hudson's Bay, 148; A Tentative Classification of the Prehistoric Cultures of Minnesota, 231.

DELLINGER, S. C. and S. D. DICKINSON, Possible Antecedents of the Middle Mississippian Ceramic Complex in Northeastern Arkansas, 133.
Diagnostic Flint Points, 72.
DICKINSON, S. D. and S. C. DELLINGER, Possible Antecedents of the Middle Mississippian Ceramic Complex in Northeastern Arkansas, 133.
DOUGLAS, F. H., review, Indian Arts in North America, 181.
DREWS, ROBIN, Peculiar Wooden Tubes from Southeastern Oregon, 75.
DRUCKER, PHILIP, reviews, Archaeological Horizons in Central California, An Introduction to the Archaeology of Central California, 360.
Dubois, Eugene, obituary, 349.

Early Man in America: Antiquity of Man in the New World, 203; A Note on Folsom and Nepesta Points, 79; A Reply to "Folsom and Nepesta Points," 78; Supplementary Data on Early Man in America, 346.
EISELEY, LOREN, review, Climate and Evolution, 299.
El Salvador: news of, 287.
Eskimo: The Manitunik Eskimo Culture of East Hudson's Bay, 148.

FAIRBANKS, CHARLES H., "Salt Pans" from the Southeast, 65.
FENENGA, FRANKLIN, A Reply to "Folsom and Nepesta Points," 78; review, Preliminary Report of the Jemez Excavation at Nanishagi, New Mexico, 297.
FENTON, WILLIAM N., review, Roebuck Prehistoric Village Site, Grenville County, Ontario, 290.
FERGUSON, ALICE L. L. and T. D. STEWART, An Ossuary Near Piscataway Creek, with a Report on the Skeletal Remains, 4.
FEWKES, V. J., Methods of Pottery Manufacture, 172.

Field Methods: Photographic Surveying, 343.
FISCHEL, HANS E., Supplementary Data on Early Man in America, 346.
Florida: Beveled Artifacts in Florida of the Same Type as Artifacts Found near Clovis, New Mexico, 314; news of, 175.
Folsom: A Note on Folsom and Nepesta Points, 79; A Reply to "Folsom and Nepesta Points," 78; Supplementary Data on Early Man in America, 346.
Frauds, Archaeological from Colorado, 173.

Geology: Two Post-Nipissing Sites near Killarney, Ontario, 305.
Geometric Designs on Mimbres Bowls (The Gunnison Collection IX), 107.
Georgia: news of, 87, 352.
GILLIN, JOHN, A Barbed Bone Projectile Point from Utah, 170.
Gold Ornaments of Chavin Style from Chongoyape, Peru, 250.
Gorgets, reel-shaped, 265.
GREENMAN, E. F., An Acknowledgement, 80.
GREENMAN, EMERSON F., and GEORGE M. STANLEY, Two Post-Nipissing Sites near Killarney, Ontario, 305.
GRIFFIN, JAMES B., Reel-shaped Gorgets, 265; review, The Chilton Site, 185.
GRIFFIN, JAMES B. and GEORG NEUMANN, review, The Chiggerville Site, 186.
Gunnison Collection IX, Geometric Designs on Mimbres Bowls, 107.

Hand Choppers in New Mexico, Some Notes on, 263.
HAWLEY, FLORENCE, Squash-Blossom Headdress in Basket Maker III, 167.
HEIZER, ROBERT F., A Note on Folsom and Nepesta Points, 79; review, Prehistoric Man of the Santa Barbara Coast, 372.
HIBBEN, FRANK C., Sandia Cave, 266.
Hieroglyphs, A Discussion of J. Eric Thompson's Interpretations of Chichen Itza, 327.
HOWELL, DAVID H., Pipestone and Red Shale Artifacts, 45.
HURST, C. T., Geometric Designs on Mimbres Bowls (The Gunnison Collection IX), 107.
HUSCHER, B. H. and H. A., Archaeological Frauds from Colorado, 173.

Illinois: news of, 82, 277, 279.
Indiana: news of, 83, 276.
IVES, RONALD L., The Origin of Some Polished Stone Artifacts, 70; Photographing Translucent, Transparent, and Multicolored Artifacts, 263.

JENKS, ALBERT ERNEST and MRS. H. H. SIMPSON, SR., Beveled Artifacts Found near Clovis, New Mexico, 314.
JOHNSON, ERNEST N., The Serrated Points of Central California, 167.
JONES, VOLNEY H., review, The Economic Botany of the Kiowa Indians as it Relates to the History of the Tribe, 289.

Kansas: news of, 280.
KEITHAHN, E. L., The Petroglyphs of Southeastern Alaska, 123.
Kentucky: news of, 351.
KIDDER, ALFRED II, review, Archaeology of Santa Marta, Colombia, the Tairona Culture Part II, Section 2, Objects of Pottery, 363.
KRIEGER, ALEX D. and KENNETH E. LEATHERMAN, Contributions to Oregon Coast Prehistory, 19.
KROEBER, A. L., Statistical Classification, 29.
KROGMAN, W. M., review, The Stone Age of Mt. Carmel. II, The Fossil Remains from the Levalloiso-Mousterian, 370.

Laboratory Methods: Photographing Translucent, Transparent, and Multicolored Artifacts, 263; Plastic Clay, 67.
LAUGHLIN, W. S. and L. S. CRESSMAN, A Probable Association of Mammoth and Artifacts in the Willamette Valley, Oregon, 339.
LEATHERMAN, KENNETH E. and ALEX D. KRIEGER, Contributions to Oregon Coast Prehistory, 19.
LILLARD, JEREMIAH BEVERLY, obituary, 349.
LOTHROP, S. K., Gold Ornaments of Chavin Style from Chongoyape, Peru, 250; review, Prehistory in Haiti; A Study in Method, 364.

MACCLINTOCK, PAUL, review, Geologic Antiquity of the Lindenmeier Site in Colorado, 182.
Maine: news of, 81.
MALOUF, CARLING, Prehistoric Exchange in the Northern Periphery of the Southwest, 115.
Manitunik Eskimo Culture of East Hudson's Bay, 148.
Maryland: An Ossuary Near Piscataway Creek, with a Report on the Skeletal Remains, 4.
Maya: A Discussion of J. Eric Thompson's Interpretations of Chichen Itza Hiero-

glyphs, 327; Yokes or Ball Game Belts? 320.
McCown, Theodore D., The Antiquity of Man in the New World, 203.
McGregor, J. C., review, Preliminary Report on the 1937 Excavations, Bc 50–51, 192.
McKern, W. C., reviews, Indians of the United States, 375; Manual of Field and Laboratory Techniques Employed by the Division of Anthropology, University of Tennessee, 295.
Membership list, Society for American Archaeology, 385.
Merrill, Robert H., Photographic Surveying, 343.
Methods of Pottery Manufacture, 172.
Mexico: news of, 285, 358.
Middle American Area: news of, 88, 178, 285.
Mimbres Bowls, Geometric Designs, 107.
Minnesota: news of, 83, 278; A Tentative Classification of the Prehistoric Cultures of Minnesota, 231.
Mississippi: news of, 274.
Missouri: news of, 83, 279.
Morris, Earl H., Prayer Sticks in Walls of Mummy Cave Tower, Canyon Muerto, 227; reviews, Archaeological Work in the Ackmen-Lowry Area Southwestern Colorado, Modified Basket Maker Sites, Ackmen-Lowry Area Southwestern Colorado, 378.
Movius, Hallam L., Jr., review, Flint-Working Techniques of the American Indians: An Experimental Study, 369.
Mummy Cave Tower, Canyon del Muerto, Prayer Sticks 227.

Neumann, Georg and James B. Griffin, review, The Chiggerville Site, 186.
New Jersey: news of, 81.
New Mexico: news of, 84, 85, 281, 356; Sandia Cave, 77, 266; Some Notes on Hand Choppers in New Mexico, 263.
New York: news of, 81, 174, 272, 350.
North Dakota: news of, 354.
Northeastern Area: news of, 81, 174, 272, 350.
Northern Mississippi Area: news of, 82, 275.

Obituary: Harlan Ingersoll Smith, 63; Eugene Dubois, 349; Jeremiah Beverly Lillard, 349; Charles Avery Amsden, 349.
Ohio: news of, 82, 276.
Oklahoma: Comment on an Oklahoma Pictograph, 166.
Ontario: news of, 82; Two Post-Nipissing Sites near Killarney, Ontario, 305.
Oregon: Contributions to Oregon Coast Prehistory, 19; Peculiar Wooden Tubes from Southeastern Oregon, 75; A Probable Association of Mammoth and Artifacts in the Willamette Valley, Oregon, 339; The Origin of Some Polished Stone Artifacts, 70.
Ossuary near Piscataway Creek, with a Report of the Skeletal Remains, 4.

Pacific Coast Area: news of, 177, 284, 358.
Panama: news of, 287.
Peculiar Wooden Tubes from Southeastern Oregon, 75.
Peru: Gold Ornaments of Chavin Style from Chongoyape, 250.
Petroglyphs of Southeastern Alaska, 123.
Photographic Surveying, 343.
Photographing Translucent, Transparent, and Multicolored Artifacts, 263.
Pictograph, Comment on an Oklahoma, 166.
Pipestone and Red Shale Artifacts, 45.
Plains Area: Archaeological Conference, Norman, Oklahoma, 280; news of, 280, 354.
Plastic Clay, 67.
Point Sal, Archaeological Notes on a Midden, 214.
Pottery: Geometric Designs on Mimbres Bowls, 107; Methods of Pottery Manufacture, 172; Mississippian Ceramic Complex in Northeastern Arkansas, 133.
Prayer Sticks in Walls of Mummy Cave Tower, Canyon del Muerto, 227.
Prehistoric Exchange in the Northern Periphery of the Southwest, 115.
Probable Association of Mammoth and Artifacts in the Willamette Valley, Oregon, A, 339.

Quimby, George I., Jr., The Manitunik Eskimo Culture of East Hudson's Bay, 148.

Reed, Erik K., review, Prehistoric Culture Units, etc. 189.
Reel-shaped Gorgets, 265.
Reviews: Annual Report of WPA and the University of Texas Archaeological Research, Lake Buchanan, 1936–37, 89; Archaeological Horizons in Central California, 360; Archaeological Work in the Ackmen-Lowry Area, Southwestern Colorado, 378; Archaeology of Santa Marta, Colombia, The Tairona Culture . . . 363; Battlefield of the Gods, 297; The Chiggerville Site, 186; The Chilton Site, 185; Climate and Evolution, 299; The Economic Botany of the Kiowa Indians . . . 289; Ethnobotany of the

Hopi, 288; Excavating the Site of Old Fort Ridgely, 182; Flint-Working Techniques of the American Indians, 369; Geologic Antiquity of the Lindenmeier Site in Colorado, 182; Indian Arts in North America, 181; An Introduction to the Archaeology of Central California, 360; Jemez Pueblo of Unshagi, 93; The Jones Pond Shell Heap, 183; Manual of Field and Laboratory Techniques Employed by the Division of Anthropology, University of Tennessee, 295; Modified Basket Maker Sites, Ackmen-Lowry Area, Southwestern Colorado, 378; Pajarito Plateau and Its Ancient People, 188; Plant Collecting Manual for Field Anthropologists, 185; Plantae Mexicanae II, the Identification of Teonanacatl, 184; Population Changes in the Rio Grande Glaze-Paint Area, 368; Prehistoric Culture Units, 189; Prehistoric Culture Units and Their Relationships in Northern Arizona, 366; Prehistoric Man of the Santa Barbara Coast, 372; Prehistory in Haiti, 364; Preliminary Report of the Jemez Excavation at Nanishagi, New Mexico, 296; Preliminary Report of the Smithsonian Institution-Harvard Expedition to Honduras, 195; Preliminary Report on the 1937 Excavations, Bc 50–51, 192; Roebuck Prehistoric Village Site, Grenville County, Ontario, 290; So Live the Works of Men, 91; The Stone Age of Mt. Carmel II, The Fossil Remains from the Levalloiso-Mousterian, 370; Tapajo Pottery, 298.

"Salt Pans" from the Southeast, 65.

Sandia Cave, 77, 266.

SATTERTHWAITE, LINTON, JR., review, Preliminary Report of the Smithsonian Institution-Harvard Expedition to Honduras, 195.

Serrated Points of Central California, 167.

Shell heaps: Archaeological Notes on a Midden at Point Sal, 214.

SIMPSON, MRS. H. H., SR. and ALBERT ERNEST JENKS, Beveled Artifacts in Florida of the Same Type as Artifacts Found near Clovis, New Mexico, 314.

Smith, Harlan Ingersoll, obituary, 63.

Society for American Archaeology: Annual meeting, 96; Membership list, 385.

South America: Gold Ornaments of Chavin Style from Chongoyape, Peru, 250.

South Dakota: news of, 355.

Southeastern Area: news of, 87, 175, 274, 351; "Salt Pans" from the Southeast, 65.

Southwestern Area: news of, 84, 175, 281, 356; Prayer Sticks in Walls of Mummy Cave Tower, Canyon del Muerto, 227; Prehistoric Exchange in the Northern Periphery of the Southwest, 115; Sandia Cave, 266; Some Notes on Hand Choppers in New Mexico, 263.

SPICER, EDWARD H., review, Pajarito Plateau and Its Ancient People, 188.

Squash-Blossom Headdress in Basket Maker III, 167.

STANLEY, GEORGE M. and EMERSON F. GREENMAN, Two Post-Nipissing Sites near Killarney, Ontario, 305.

Statistical Classification, 29.

STEWARD, JULIAN H., review, Prehistoric Culture Units and Their Relationships in Northern Arizona, 366.

STEWART, T. D. and ALICE L. L. FERGUSON, An Ossuary near Piscataway Creek, with a Report on the Skeletal Remains, 4.

Tennessee: news of, 352.

Terminology, Committee on archaeological, 350.

Texas: news of, 84, 274, 283, 351, 356.

THOMPSON, J. ERIC S., review, Battlefield of the Gods; Aspects of Mexican History, Art and Exploration, 297; Yokes or Ball Game Belts? 320.

TODD, WILLIAM, Plastic Clay, 67.

TOULOUSE, JOSEPH H., JR., Some Notes on Hand Choppers in New Mexico, 263.

Two Post-Nipissing Sites near Killarney, Ontario, 305.

Utah: Barbed Bone Projectile Point from Utah, 170; news of, 85, 87, 282, 283.

Virginia: news of, 81.

Washington (State): news of, 177, 359.

WEDEL, WALDO R., review, Annual Report of WPA and the University of Texas Archaeological Research, Lake Buchanan, 1936–1937, 89.

WHITE, LESLIE A., review, Population Changes in the Rio Grande Glaze-Paint Area, 368.

WHITING, ALFRED F., review, Plant Collecting Manual for Field Anthropologists, 185; Plantae Mexicanae II, the Identification of Teonanacatl, 184.

WILFORD, L. A., review, The Site of Old Fort Ridgely, 182; A Tentative Classification of the Prehistoric Cultures of Minnesota, 231.

WINTEMBERG, W. J., Harlan Ingersoll Smith, 63.

WISSLER, CLARK, review, So Live the Works of Men, 91.

Yokes or Ball Game Belts? 320.

FACTS AND COMMENTS

Photographic Surveying. ROBERT H. MERRILL 343

Supplementary Data on Early Man in America. HANS E. FISCHEL . 346

BOOK REVIEWS

LILLARD, HEIZER and FENENGA: *An Introduction to the Archaeology of Central California;* HEIZER and FENENGA: *Archaeological Horizons in Central California* (Drucker) 360

MASON: *Archaeology of Santa Marta, Colombia. The Tairona Culture; Part II, Section 2, Objects of Pottery* (Kidder, II) . 363

ROUSE: *Prehistory in Haiti; A Study in Method.* (Lothrop) . . 364

COLTON: *Prehistoric Culture Units and Their Relationships in Northern Arizona* (Steward) 366

MERA: *Population Changes in the Rio Grande Glaze-Paint Area.* (White) 368

ELLIS: *Flint-Working Techniques of the American Indians: An Experimental Study* (Movius) 369

MCCOWN and KEITH: *The Stone Age of Mt. Carmel. II, The Fossil Remains from the Levalloiso-Mousterian* (Krogman) . . 370

ROGERS: *Prehistoric Man of the Santa Barbara Coast* (Heizer) . 372

WISSLER: *Indians of the United States* (McKern) 375

MARTIN: *Archaeological Work in the Ackmen-Lowry Area Southwestern Colorado: Modified Basket Maker Sites, Ackmen-Lowry Area Southwestern Colorado* (Morris) 378